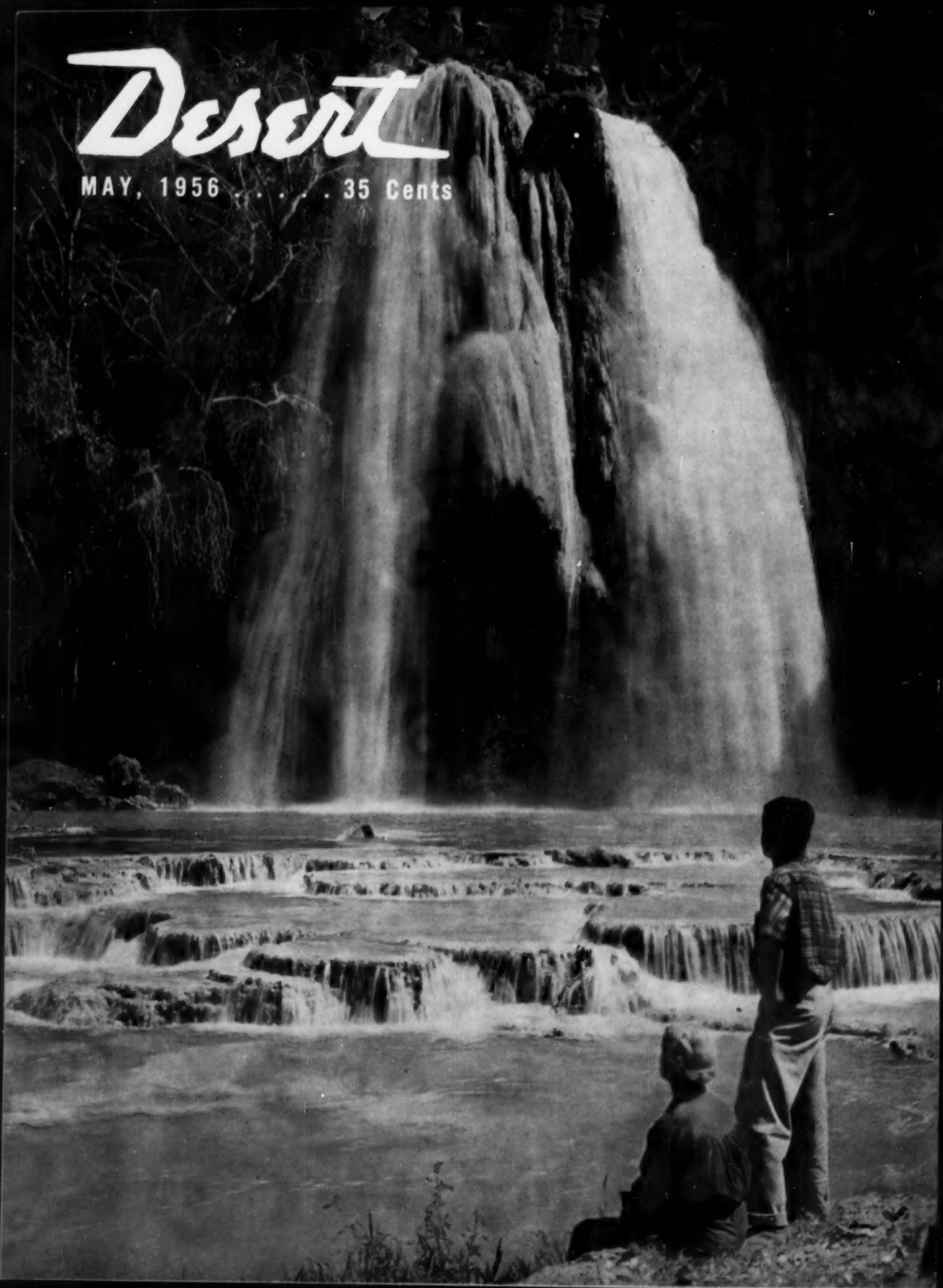
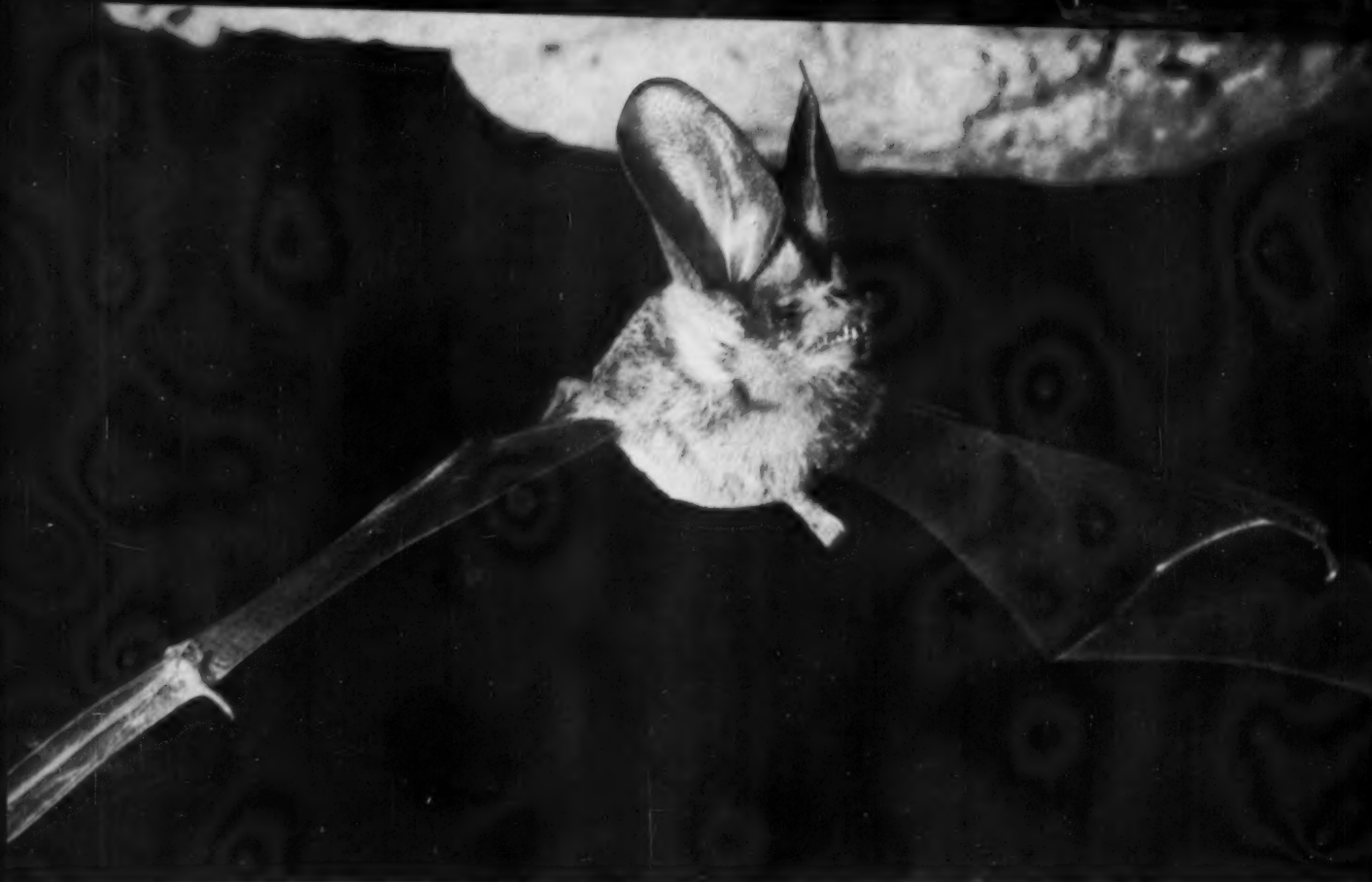


Desert

MAY, 1956 35 Cents





Leather-Winged Bat

Emerging from its inky desert cave in the Mule Mountains west of Blythe, California, is this bat, photographed by L. D. Schooler of Blythe, this month's first prize winner. The photograph was made with a rolleicord camera on Plus X film; f. 16 at 1/500 second with flash.



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- May 2-5—Las Damas Trek, Wickenburg, Arizona.
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- May 4-5—Eastern New Mexico University Rodeo, Portales.
- May 4-6—Turtle Races and Carnival, Joshua Tree, California.
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- May 5—Mexican Independence Day. Local Celebrations Along Border.
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- May 5-6 — Annual Rodeo, Saugus, California.
- May 6—Annual Rose Festival, Tombstone, Arizona.
- May 6—Desert Vegetation Tour and Palo Verde Festival, Tucson, Ariz.
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EVONNE RIDDELL, Circulation Manager

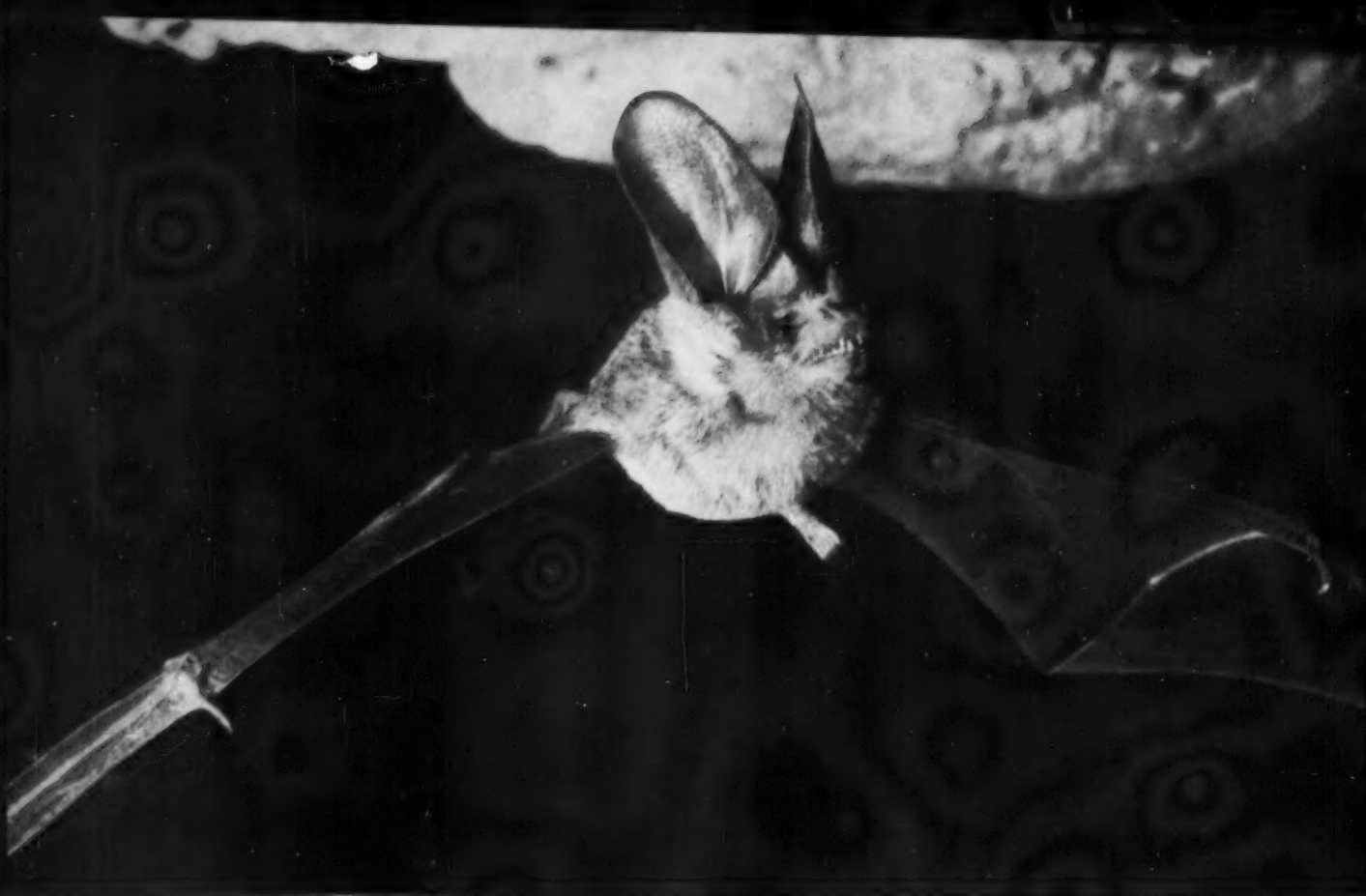
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SUBSCRIPTION RATES

One Year.....\$4.00 Two Years.....\$7.00
Canadian Subscriptions 25c Extra, Foreign 50c Extra

Subscriptions to Army Personnel Outside U. S. A. Must Be Mailed in Conformity With
P. O. D. Order No. 19087

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Material from Augustine Pass. Left and right, chalcedony roses from the area. Center, piece Sam Robinson cut many years ago from a nodule he found in the pass. Cabochons cut by Anna Poste from material recently collected there.

Augustine Pass Agates

If prospector-miner Martin Augustine could return to his beloved Chuckawallas for just one weekend, he probably would derive much pleasure from watching present day desert dwellers picking up, examining and then pocketing the "pretty rocks" strewn along his pass. In the old days he was too busy with his gold claims to pay much heed to these stones — but, he was never too busy to enjoy the peaceful warmth of the land around him.

By HAROLD O. WEIGHT
Photographs by the author
Map by Norton Allen



AT A ROCK SHOW in El Centro, California, nearly 10 years ago, Lucile acquired, from the grab bag, a transparent slice of fortification agate with gray-green inclusions looking like slender seaweed streamers. Delighted, she traced it to Sam Robinson, pioneer Imperial Valley collector, and learned he had found it in Augustine Pass in the Chuckawallas. Since then she has brought out the slice from time to time and wondered wistfully if any rock like it remained in the pass.

The Big and Little Chuckawallas are a massive, spectacularly eroded arc extending 40 miles across Riverside County south of and parallel to Highway 60. Augustine Pass cuts this arc about midway, but with a 4-wheel drive car it can be reached from the northern side only by taking the wretched road to Chuckawalla Spring and from there hiking two or three miles west, as I did once in 1939. Its southern approaches are extremely roundabout and equally difficult.

However last year, while investigating lost gold legends of the Bradshaw-Chuckawalla Trail, we found that construction of a pole line through the pass between the Orocopias and the Chuckawallas had provided a route to Augustine Pass that any good desert driver could negotiate. In fact, this is the only route that can be recommended since heavy cloudbursts last October damaged the Graham Pass road and made a section of the trail between Graham Pass and the Augustine turnoff soft with deep sand.

Our collecting trip to Augustine started from Twentynine Palms early on a bright, mild winter day ideal for rock hunting. With Dave and Anna Poste, Adelaide Arnold and her dog General, all Twentynine Palms friends, we took the most direct route through Joshua Tree National Monument across

Some of the fortification agates, geodes and cutting material found in Augustine Pass field.



In Augustinus Pass. This level area makes an excellent camping and picnicking place. Agate, chalcedony and crystal geodes can be collected on the low rises and slopes, center.

Pinto Basin to Highway 60-70. All but a few miles of this road have been oiled by the Park Service.

Reaching 60-70, we turned eastward through Shavers' Summit, leaving the highway again 10.3 miles east of Shavers' and 1.3 miles east of the Kaiser railroad crossing. The right-angled south turnoff is just east of a highway bridge, and is marked only with a sign: "Not a Through Road." We left this road at its first inconspicuous left branch, marked by a Sweeney Tungsten Mine sign, at 1.7 miles from the highway.

We kept left again at a fork about two miles from the highway and then turned right along the pole line after going 3.8 miles. About 12 miles from 60-70 this pole line road enters the Navy's Chocolate Mountains holdings and is blocked by iron gates. At this point it is crossed by the old Bradshaw Road, and we turned left (eastward) on that, roughly paralleling the Big Chuckawallas.

At 22.5 miles we passed a recently scraped road cutting northward into the Chuckawallas to active mining claims near Cap Hunter's old cabin. The Augustinus Pass road leaves the

Bradshaw Trail at 25.5 miles from 60-70, wandering northeasterly toward a low saddle just east of tumbled volcanic peaks. While there are a few short sandy stretches before reaching this point, the worst part of the road is the first mile after leaving the Bradshaw in which three washes must be crossed. From the washes to the pass, another mile, the road is reasonably good.

We checked several times before reaching the summit, finding everywhere scatterings of chalcedony or agate or chalcedony roses. After passing through a fine open camping and picnicking area at the summit, the trail plunges steeply down a narrow, twisting, sandy, rocky canyon. In places we were forced to see-saw around turns and at times the car clambered over little rocky cascades. We passed beyond the Tertiary volcanics interesting to rockhounds almost as soon as we entered the canyon, passing through a long stretch of contorted metamorphics.

Climbing back to the summit we stopped at the foot of the last steep upward pitch. Eastward from here collecting material was abundant. Chalcedony eroded thickly from brown vol-

canic rock and there were nodules, crystal geodes, little stone roses and broken bits of vein. Some showed plume of mottled white and a little had the greenish inclusions Lucile was particularly seeking. This area can be reached easily on foot from the summit, and it earnestly is recommended that passenger car drivers do not attempt to go down into this canyon.

Back in the pass, we ate lunch while enjoying the wide and magnificent view to the north and south. But our enjoyment was shattered by the sudden clatter of machine guns. High overhead between us and crowded Highway 60-70 appeared military aircraft towing targets, followed by gunnery planes diving on and firing on the targets.

The Military asserts that it needs its enormous ranges so that by no accident, bad judgment or carelessness will a citizen outside those boundaries be injured or his property damaged. Yet all the Chuckawalla Mountains—Big and Little are outside the Navy's huge 200,000 acre Chocolate Mountain aerial gunnery empire. The Bradshaw Road marks the posted boundary of this range—and we were two miles from that boundary and only about



10 miles from a transcontinental highway.

We had heard several reports of such Navy violations in this area, and a few years ago a mine owner in the Big Chuckawallas had his buildings punctured by diving and strafing planes. Ignorance of boundaries cannot be claimed, unless pilots cannot tell the difference between a valley and a mountain range. Yet the boundaries are posted with warnings that civilian trespassers—who only endanger themselves—face fine and/or imprisonment! Until this dangerous trespass is halted it is safer to visit the Chuckawalla gem fields only on weekends.

Machine gunning was one hardship not faced by prospectors attracted to the Big and Little "Chuckies" in early times. C. R. Orcutt, in an 1890 California Mining Bureau report wrote: "There is scarcely a quartz ledge in the Chuckawalla Mountains that will not yield a color to the industrious prospector. Wherever the prospector has used a pan on the mesa-like formations bordering the depressed basin, he has been rewarded with at least a color. In every wash throughout the Chuckawallas, I am informed, gold has been found wherever sought with intelligence."

Martin Augustine, for whom this pass was named, was one of the seekers. He appeared on the Colorado Desert, according to Ed Rochester, about 1916-17, coming from South America. He worked the Chocolates around Beals Well and Salvation

Augustine Pass Log From Highway 60-70

- 00.0 Turnoff from Highway 60-70, 10.3 miles east of Shavers Summit, 9.3 miles west of Desert Center.
- 01.7 Branch. Take left. Do not cross or parallel Kaiser Railroad.
- 02.0 Second branch. Keep left.
- 03.8 Turn right along power pole line.
- 12.0 Pole line road enters Navy aerial gunnery range immediately after crossing old Bradshaw Trail. Turn left (eastward) on Bradshaw Trail.
- 22.5 New scraped road branches left. Continue on old main road.
- 25.5 Turn left on Augustine Pass road from Bradshaw Trail.
- 27.5 Augustine Pass.

Spring, then packed his desert canaries and punched them across Paradise Valley into the Chuckawallas where he spent most of his remaining life.

Probably he noticed and pondered upon these chalcedony roses, agates and geodes. The most all-observant and all-curious humans ever to roam our deserts were members of the prospector tribe and their predecessors and contemporaries, the desert Indians. And we know the Indians found these rocks. An old trail cuts across the pass and at a campsite near it we saw broken pottery and agate chippings.

But prospectors had to concentrate on the precious metals. Pretty stones had little commercial value. And though their requirements were meager by our standard of necessity, the old-timers did have to eat. Periodically

they needed a little gold to transmute into bacon and beans, or at least some indications which would promote another grubstake.

So Augustine went on, and in the canyons below he found enough gold to allow him to settle down and build a cabin. His cabin was within two or three miles of Chuckawalla Spring, but so rugged were these miles that his burro supply train continued to operate through the pass he had opened. And when the first automobile—a Model T piloted by Ed Rochester and Earl Kerr—came to his cabin, it followed that same burro trail. Ed and Earl came to placer a wash near Augustine's and their road-making tools were picks, shovels, sledges—and plenty of muscle and time.

"It took half a day to work down from the pass into the wash," Ed told me recently. "And the wash was so narrow and twisty we had to jack the car around corners!"

Ed and Earl placered several hundred dollars out of their wash and then coaxed the Model T back out of the canyon. Occasional later travelers kept the road up, after a fashion, until the Imperial Valley rock collectors arrived in the '30s.

When Martin Augustine died—Ed believes in the early '40s—he hadn't made a fortune from the Chuckawallas. Desert miners and prospectors face hardships and problems almost inconceivable to us.

Dave and Anna Poste can tell about that. The Postes came to Twentynine

Palms in the winter of 1923-24 with a lease on the big Virginia Dale gold mine, inoperative since 1909. From Whitewater out, the road was either sharp rock or soft sand, and Anna examined the tires repeatedly to see if they were going to survive. "What possessed anyone to come out here in the first place?" she wanted to know.

"Probably," Dave suggested cheerfully, "most of them were about three jumps ahead of the sheriff."

"The sheriff was crazy to follow them out here!" Anna decided. But she felt differently when at the Virginia Dale they cut off the motor and the magnificent living quiet of the desert closed warmly around them. "You could have heard a whisper a mile away," Dave remembers.

Dave and Anna worked for 18 months to get the old mine into operation. For years assessment work had been done by shooting down the roofs of the different levels. On first inspection they had to crawl through the tunnels over the muck on their hands and knees. All that had to be cleared. And at first they hauled their water 20 miles from Twentynine Palms oasis. On Sundays the whole crew would go to the oasis, bathe in a bathroom improvised of canvas spread around mesquites, and scrub out their clothing.

Then the Postes put the well at Old Dale, four miles from the mine, into operation, mortgaging their San Bernardino home for pipe to pump water up to the mine. A freeze caught the line and it took a day and a half to weld the leaks.

Today Dave and Anna differ whether the ore run through the mill returned \$194 or \$147. They are agreed that they left the Virginia Dale with \$18 in cash. Anna, remembering the San Bernardino home they had lost, pointed at portions of the pipe line as they traveled toward Old Dale. "That's the bedroom," she said, "and that stretch is the living room, and there's the kitchen."

"On the surface the ore ran \$6-\$8 a ton," Dave explained, "with an 18-inch to two-foot vein. The deeper it went, the better it got. On the 300 it ran about \$20. The trouble was the country out here has been so shattered you'd be driving along the vein and suddenly you'd strike country rock! Maybe 100 feet before you picked it up again. Then there'd be an 80 foot break and you'd have to drive one way or another!"

Interested in pretty rocks from the first days on the desert, before there was a gem society or craft classes at Twentynine Palms, Anna learned from



Anna Poste taught herself rock cutting and polishing and jewelry making —by reading and doing—before there was a gem society in Twentynine Palms.

books and by practice how to cut and polish stones and make jewelry. Today the Postes find as much pleasure hunting rocks as they once did the more elusive gold veins. And I doubt that they regret the hard knocks that making a living on the desert has entailed, as compared with the easier years in the city.

And I doubt if Martin Augustine would willingly have lived any other sort of life, no matter how small the golden returns of his Chuckawalla claims. One of the pleasures of rock hunting to me is the coming upon old

roads washing out of existence, old tunnels cut laboriously into deceitful rock, makeshift and collapsing shacks in lonely canyons.

I feel no sense of failure or waste or futility about these fading evidences of men's toil. I think these people achieved the only kind of success humans can achieve. They lived where they chose and worked at their chosen tasks, harsh and unrewarding though the chosen tasks may have been. Their relics are monuments of one facet of the spirit which for so long made America the citadel of human freedom.

Lucile and Anna Poste discover pottery sherds and agate chippings at an old campsite near the pass, evidence that desert Indians were early collectors here.



Desert Protective Council Would Revise California Hunting Laws

Radical revision of California laws relating to predatory animals is urged in a resolution adopted by the Desert Protective Council at a meeting held in Borrego Valley in March.

The action of the Council was in accord with recommendations made by its Wildlife Committee composed of J. D. Goodman, chairman, University of Redlands; R. B. Cowles, UCLA; W. P. Taylor, Claremont; L. H. Benson, Pomona College and E. R. Tinkham, Indio.

Predatory animals, according to the California Fish and Game Code, are listed as follows:

1—The order Insectivora (moles and shrews).

2—The order Marsupialia (opossums).

3—The order Rodentia (rats, mice, gophers), except tree squirrels, flying squirrels and beavers.

4—The family Canidae (wolves, coyotes, foxes).

5—The family Procyonidae (ring-tail cat, racoon).

6—The family Mustelidae (marten, fisher, wolverine, weasel, skunk, mink, badger).

The Council's recommendations as to these animals follows:

Shrew. The shrew is a predator only to the extent that it preys on tiny animals of no concern to mankind. Recommended that it be removed from the predator list.

Wolf. There is considerable doubt as to whether or not any of the native wolves survive in California, and in view of its rarity, it is proposed that it be removed from the list.

Mountain Lion. The Council took the view that as a result of bounty hunting this animal is near extinction in many parts of the West. It was proposed that it remain on the predatory list, but that the California bounty (\$60 for female and \$50 for male) be removed.

Ringtail Cat. Found only in the arid regions. A shy animal which lives mostly on woodrats and ground squir-

rels. Never a menace to man, it is entitled to protection.

Coyote. While the coyote is regarded as an aid to agriculture to the extent that it destroys such agricultural pests as mice, gophers and insects, it also becomes a threat to stockmen where it is abundant, and its removal from the predator list was not recommended.

Cats. It was suggested that feral cats — that is, domestic cats which have reverted to the wild — do more damage to wildlife than does the wildcat. It was recommended that the feral cat be placed on the predatory list. Also, that any cat is a predatory animal unless in the residence of its owner or on grounds adjacent to the residence.

Weasels, Skunks and Racoons. Recommended that they be removed from the predatory list and classified as furbearing species. However, it was felt that the owner of property should have the privilege of destroying such animals as cause destruction on said property.

Gopher. A nuisance animal rather than a predator, but should remain on the predator list.

California Ground Squirrel. Because of its potential danger as a plague reservoir, it should remain on the predator list, but wholesale poisoning is not favored because of the danger to other forms of wildlife.

Mohave (or antelope) Ground Squirrel. For the most part a dweller of the desert, and since it seldom encroaches on human habitations or agricultural areas, should be removed from the predator list.

Kangaroo, Packrat, Pocket Mice and White-Footed Mice. For the most part nocturnal rodents, and while the Council did not favor giving them protection, it was felt that it was inaccurate to classify them as predatory animals.

The California code classifies the following birds as predatory: Bluejay, English sparrow, great horned owl, sharp-shinned hawk, Cooper's hawk, duck hawk, house finch, crow, black-billed magpie, shrike or butcher bird, white pelican and shag or cormorant.

The Council agreed that the following birds deserve protection and should be removed from the predatory list: All hawks and owls, white pelican and cormorant, the shrike and house finch, both of which are protected by federal law, and the pinyon jay.

It was recommended that the white-winged dove be removed from the California list of game birds, and that the hunting season for mourning doves be limited to 15 days starting September 15. Some members of the committee favored protection of the mourning dove, and a further study is to be made of the habits of this bird.

Picture-of-the-Month Contest...

No other region on earth offers the wide range of subjects, panoramas, vistas, shadow patterns—or happy people enjoying themselves in a delightful playground—as does the Desert Southwest. The Picture-of-the-Month contest is a good way to make that hobby pay off in cash as well as in the satisfaction of seeing your work in print and knowing that thousands of readers are enjoying the scenes which once stood before your camera.

Entries for the May contest must be sent to the Desert Magazine office, Palm Desert, California, and postmarked not later than May 18. Winning prints will appear in the July issue. Pictures which arrive too late for one contest are held over for the next month. First prize is \$10; second prize \$5. For non-winning pictures accepted for publication \$3 each will be paid.

HERE ARE THE RULES

1—Prints for monthly contests must be black and white, 5x7 or larger, printed on glossy paper.

2—Each photograph submitted should be fully labeled as to subject, time and place. Also technical data: camera, shutter speed, hour of day, etc.

3—PRINTS WILL BE RETURNED WHEN RETURN POSTAGE IS ENCLOSED.

4—All entries must be in the Desert Magazine office by the 20th of the contest month.

5—Contests are open to both amateur and professional photographers. Desert Magazine requires first publication rights only of prize winning pictures.

6—Time and place of photograph are immaterial, except that it must be from the desert Southwest.

7—Judges will be selected from Desert's editorial staff, and awards will be made immediately after the close of the contest each month.

Address All Entries to Photo Editor

The Desert Magazine

PALM DESERT, CALIFORNIA

LIFE ON THE DESERT

Phantom Fox of the Desert

Only rarely does a desert dweller get a long and lasting look at a kit fox. Usually what one sees is a fleeting shadow at the edge of the campfire's ring of light. But, Cap and Olga Smith were lucky for one of their neighbors had befriended a kit fox family with food. This is the story of what the Smiths saw the night their friend was called away and they played host to the fox family.

By CAP and OLGA SMITH



A kit fox snaps its own photograph by tripping the flash camera wires.

NINNY IS A little desert kit fox. She dug her den under a silvery brittle bush in the bank of a dry sandwash far out on the desert in southern Imperial County, California, and chances are no human being would ever have known about her had she and her pups not been starving.

Ninny's home range was pretty thoroughly depopulated of small wild creatures by the Army's rodent extermination program during the war. Kangaroo rats and pocket mice, favorite items on a kit fox's menu, are still scarce out there. That is why Ninny travels up the wash and across the black malpais every night to forage around Jeff's place. Jeff is an old-time burro prospector whose cabin is concealed among boulders in a hidden canyon at the foot of a bare desert mountain.

"I first sighted Ninny there by my wood pile in the moonlight," Jeff told us one January day, when, on the way to our own prospecting camp, we stopped to give him his mail. "It was last April and she was nothing but hair and bones. It's tough going out here, so I put out a pan of milk and tossed her a flapjack. You know how skittish female foxes are, but she was desperate. She came right up and lapped the milk and carried away the flapjack."

He had fed Ninny and her pups every night since. "She's a beauty now," he bragged. "And her pups are almost as big as she is. The three of

them play around my cabin every night and come right up to my door."

Our own experience with kit foxes had not been as wide as Jeff's. These shy gray and white creatures are nocturnal. You are most apt to see them when the moonlit sand gleams white as snow, when cacti and brush wear halos, when the wind is so still you notice every shadow that moves. We had caught glimpses of them, pale-furred and white-vested, in the dark beyond our campfires where they waited for us to settle down for the night so they could sneak in and forage. We had sometimes seen one watching us over his shoulder as he slipped back to his den in the early dawn, or had surprised one stalking prey around a clump of brush late in the evening. But otherwise, except for hearing their sharp yaps in the still of night and noting their dainty tracks in the sand, our experience with kit foxes was limited.

We were delighted when Jeff invited us to stay at his place and feed Ninny and her pups while he was away on a business trip.

"You'd better camp here the night before I leave," he advised. "Then they'll know you."

We were there at the appointed time, our camping in this instance amounting to little more than unrolling our blankets in the station wagon, for we cooked on the little iron stove in Jeff's cabin.

The night was chill and the iron-wood fire felt good. The Coleman lantern, hanging from a beam overhead, cast a cozy glow in the cabin, pointing up the various articles Jeff keeps handy on his walls: clothing, guns, old calendars marked with crosses, newspaper clippings, assay reports, a razor strop and a mirror; shelves well crowded with cooking utensils and groceries, shaving articles, tools and mineral specimens.

All evening we sat around the unpainted board table in the center of the one room studying and admiring Jeff's specimens, talking of mines, miners, gold strikes and, of course, the old days.

We two kept going to the door and peering out. The sand around the cabin gleamed bare and white in the moonlight, but we could see no movement. At nine o'clock Jeff finally got up to feed his foxes. Jeff is big and rough and unless you know him, you would never guess that he would concern himself with the welfare of a fox. Tall, raw-boned, straight, he can outrun us up or down any mountain trail. Only his desert-wrinkled skin and his shaggy gray hair reveal his 70-odd years.

Our friend reached for a handful of biscuit and flapjack scraps from a pan on a shelf by the door and tossed them out into the moonlight, a piece at a time.

"Come Ninny! Nice little Ninny!" he called between tosses, his voice sur-

prisingly gentle. "Mnn! Mnn! Mnn!" This last was a kind of whimper deep in Jeff's throat. "Fox talk," he explained.

The white sand was empty. It continued to be empty, despite Jeff's repeated attempts to coax his star boarders out of the shadows. "They'll be here tomorrow night," our host finally promised. And with that we had to be content.

The next night we waited alone for Ninny and her pups, using Jeff's strategy—flattery, food scraps and what we hoped were fox-like whimpers.

Again nothing happened. Once we heard a far-off yap of a fox and an answer across the canyon. We could see the ground in front of the cabin clearly, every pebble was visible. But there was still no movement. The moon rode high, a breeze at intervals flapped the canvas shade over the door stoop. A plane roared over, making

the great silence that followed even more pronounced. We were about to give up, then decided to try some beef.

"Here Ninny! Mnn! Mnn! Mnn!" We tossed out a meat scrap and waited. "Nice little Ninny!" we wheedled.

Suddenly she appeared! Right by the wood pile where Jeff had said she would be, only a few feet from the door. We could see her plainly, a tiny creature no larger than a house cat, the furry linings of her ears gleaming white, her sharp little nose pointed our way. She was sitting as motionless as the ax that leaned against the wood pile.

We tossed another meat scrap. "Come Ninny!"

Ninny darted forward, snatched the meat, wheeled, and disappeared. Strain our eyes as best we could, we were unable to see her. We threw more meat and called. About the time we

decided we had seen the last of her, she was back at the wood pile, quietly sitting as if she had never been away.

That performance—her appearance at the wood pile, snatching the meat, fading out and then returning was repeated every time we threw a piece of meat and waited. Her movements were so swift our eyes could not follow her.

Now we noticed two other foxes, one speeding out from a boulder, another from a clump of white desert holly. They ran close to the ground, scampering from cover to cover, snatching food, scampering back to cover. The wind blew a paper sack across the sand and again the stage was empty.

Calling softly, scattering scraps recklessly, we waited. Ninny, back at the wood pile, slipped forward, snatched a piece of something, disappeared. Soon she was back, snapping up food, vanishing. Once she turned her back squarely on us, sat down and looked out across the canyon, listening, ears perked, nose pointed, alert—exactly as a house cat watching the night from a doorstep. Her companions had vanished, but soon they were all on the move again, now here, now gone, shadows etched in white. We could see the cylindrical shape of Ninny's fluffy black-tipped tail as she came close. We talked to her to hold her there, flattering her, whimpering as Jeff had instructed us to do. "Ah, the nice little Ninny! The accommodating little Ninny!" She halted, lifted a forepaw, then came closer. "Nice little Ninny!"

The last scrap was thrown, the fire had died. We crossed the dooryard to the station wagon, foxes running all around us. Unable to sleep because of the brilliant moonlight, we watched fascinated while the little wraiths, sometimes only a few feet away, confidently frolicked and foraged. To them our station wagon was already safe cover.

Ninny's family was evidently a congenial one. There was no snarling or wrestling over the scraps they carried away. Silent as ghosts, their gait swift, their tails undulating gracefully behind them, they seemed to float across the sand, each making his entrance on the moonlight-flooded stage from his own chosen wing, each departing that way, none in any way interfering with the other.

For a long time we watched, straining our eyes to catch that flow of motion. Then the moon sailed behind the mountain and we went to sleep.

Next day Jeff was back and there was nothing to prove that we had witnessed the moonlight pantomime but delicate footprints in the sand.

Only Southern Arizona Expects Mass Display of Spring Flowers

Colorful wildflower displays in the Desert Southwest are predicted only for Southern Arizona—elsewhere, the lack of winter rain has ruled out mass exhibits.

From Coolidge, Arizona, Casa Grande National Monument Superintendent A. T. Bicknell writes that the soil is fairly moist which should bring about "an excellent showing of flowers."

Warm weather has brought along the wildflower shoots in the Saguaro National Monument near Tucson, Arizona, reports Superintendent John G. Lewis. The ocotillo is beginning to flower and the hedgehog cactus was expected to be in bloom by the first week of April. The saguaro cactus will reach its peak of bloom in the third week of May and there will be a fine display of prickly pear, cholla and other cacti during the first two weeks of May, said Lewis.

All other reports are unfavorable. O. L. Wallis, Park Naturalist at the Lake Mead National Recreation Area, Nevada, says the lack of additional moisture has caused wildflower conditions to worsen. However, he adds that many of the beavertail cactus are beginning to bud.

Fred W. Binnewies, superintendent of Death Valley National Monument, wrote: "I don't think it will be worthwhile to make a trip to Death Valley to see the wildflowers this spring." No

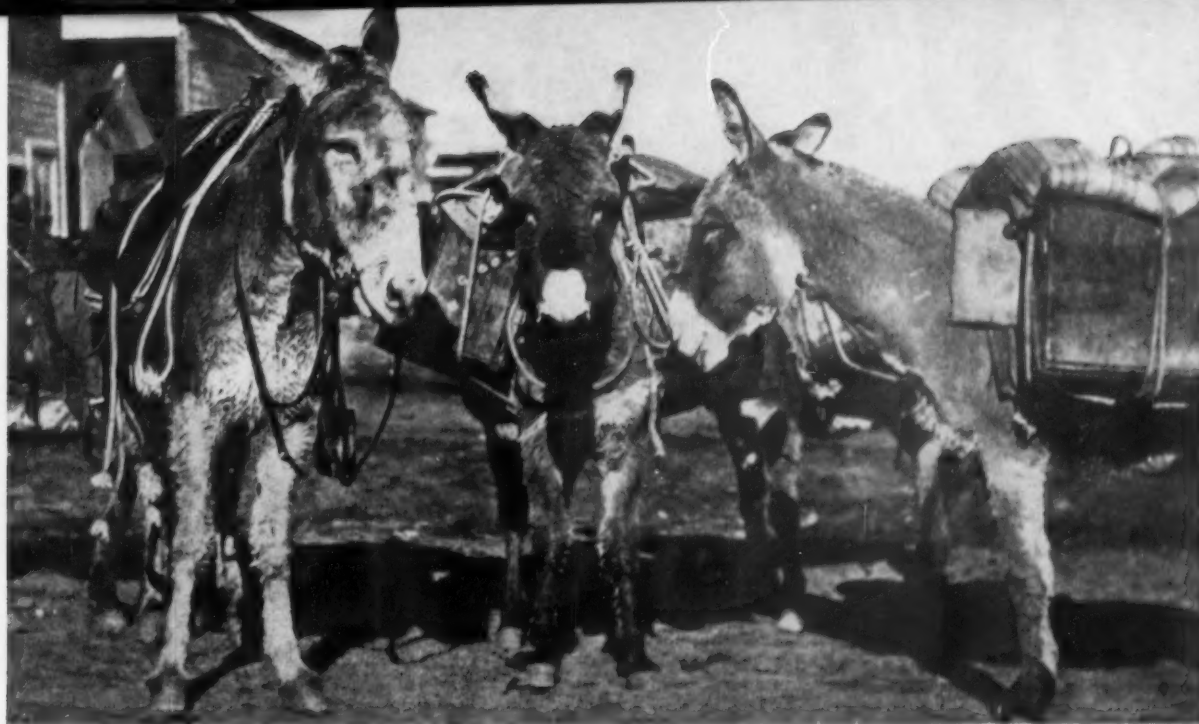
new plants are sprouting and Binnewies doubts if there will be any flowers, except, possibly, at higher elevations.

Very few wildflowers will be seen in the Borrego State Park of California, believes Supervisor William J. Reinhardt. "The ocotillo is in bloom as are barrel cactus and desert aster in Coyote Canyon. Desert lavender, some verbena, chuperosa and brittle bush are blooming along the Palm Canyon Nature Trail and the Seventeen Palms area has some desert aster also," Reinhardt wrote.

Lucile Weight of Twentynine Palms, California, reports that wildflower blooming on the high desert will be sporadic. She advises that motorists look for miniature flower gardens around highway bridges and little clay-lined depressions along desert highways where rain runoff has settled. Bruce Black, park naturalist for the Joshua Tree National Monument, tells the same story for that area, but adds that the serious photographer interested in closeup pictures of flowers will have plenty of material to work with.

Jane Pinheiro of Quartz Hill, California, says few flowers are expected this year on the Mojave desert. The Joshua trees are blooming, however.

Verbenas have appeared in some of the drains along highways in California's Coachella Valley, but late spring mass displays are not forecast.



Miner's burros in the streets of Lida, 1905. Photo by Douglas O. Robinson.

Pilgrimage Into the Past...

As her guide into the mile-high Nevada border country, Author Nell Murbarger had an expert—Douglas O. Robinson of Bishop, California. His personal recollections of life in the rugged mining camps of Lida and Palmetto go back 70 years, and his collection of historical data on these two famous ghost towns begins with the first discoveries of precious metals which lead to their foundings.

By NELL MURBARGER
Map by Norton Allen

WITH THE FIRST flush of summer's heat lying softly on Southern Nevada's mile-high desert country, the old mining camp of Goldpoint seemed even more drowsy than usual. Not one living creature was anywhere in view, and the only audible sound was that of my car wheels crunching the gravel of the deserted street.

Coasting to a halt beside the Wiley home, I saw that its front door was standing open, and in the room beyond, an elderly man was nodding comfortably in an easy chair.

I liked him the moment I saw him. He was friendly looking, with pleasant features, and white hair; and when he glanced up the eyes that met mine were clear and bright and brimming with good humor.

Remembering Stanley's classic greeting of Dr. Livingstone, I grinned.

"Mr. Robinson, I presume?"

With a brisk nod of acknowledge-

ment, he sprang to his feet and grasped my outstretched hand in both his own.

"And you're Nell Murbarger!"

Although we had not met previously, Douglas Robinson and I were not exactly strangers. We had exchanged letters for five years after I first learned of him through our mutual friend, the late Harry Wiley. I had mentioned to Harry that I would like to write a story on the ghost towns of Lida and Palmetto, but that I did not know anyone who could give me authentic information on their early history.

"Doug Robinson!" Harry had replied without a moment's hesitation. "Doug can tell you all about those towns! He was born at Gold Mountain—right over the ridge—and his personal recollections of Lida and Palmetto go back nearly 70 years. Besides, he has made a lifetime hobby of searching old newspaper files and records for still earlier references of that area."

But Douglas Robinson was chief probation officer of Inyo County, California and his office was at Bishop, 100 miles west of Goldpoint. His busy schedule did not allow much free time for prowling Nevada ghost towns. Consequently, we exchanged letters but never found a meeting time mutually satisfactory until the spring of 1955, when we made plans to meet at the Wiley home on May 20.

Although white man's acquaintance with Lida (or Alida) Valley goes back to the early 1860s, the first published mention of the valley apparently was in the Wheeler Survey Report of 1871, *Exploration in Nevada and Arizona*.

"Alida Valley is from one to two miles broad, by about six miles in length," that 85-year-old government report stated. "At the extreme eastern part is located the spring, from which issues a fine stream of water. At the summit we just crossed we found a large vein of malachite and black oxide of copper croppings. The ravines on both sides of the mountain are covered with cedars and pines in abundance, and on the northern side of the mountain we saw two springs of good water. Alida Valley is covered with good grass, and the water course is fringed with a dense undergrowth of willows. Here a man named Scott was working a claim that he had discovered. . . . The ore was stromeyerite, with malachite, cuprite and a little hematite . . ."

On March 1, 1872, the town of Lida City was founded.

"Mother remembered the camp's founding very well," Robinson told me. "At that time—1871-72—she was living with her parents who tended the old stage station at San Antone near the south end of the Toiyabe Mountains. This was on the Austin to Cerro Gordo freight road and since the new town of Lida City would be on that same road, its birth was an important event."

A small mill, water-powered by Wyman creek, was built at Deep Springs by Hiskey and Walker, and ore shipments out of Lida Valley were brought here by pack animals at a cost of \$35 per ton. Soon reduction charges and other tariffs boosted the expense of freighting and milling to \$80 a ton, and only very rich ore could be mined profitably.

Even though its major values lay in silver, Lida's ore was rich enough to meet that cost challenge.

Belmont and Independence newspapers, in May, 1872, reported that the mill had been working ore from six Lida mines, "the lowest grade yielding not less than \$400 per ton." Four tons of Lida Belle ore assayed \$724.16 to the ton, "and netted the owners \$1938.10, after deducting \$80 per ton for packing and reduction, and 20 percent loss;" and in October, that same

year, news columns told of Lida ore assaying \$1303 per ton!

Meanwhile, Hiskey and Walker were buying Lida mines. For the Cinderella, first major discovery in the district, they paid an asserted \$16,000 to Wm. T. Bill Scott and his partner, a man named Black. W. J. Brown sold them the Brown's Hope for \$3000; \$13,000 was paid to Halsey and Ayres for the Lida Belle. Having thus acquired the principal producers of the region, the Deep Springs milling concern built a new steam-powered mill at Lida and the remote little mining camp began to boom in earnest.

Scanning sheaves of typewritten notes Robinson has gleaned from old newspapers, I learned that, in addition to the weekly stage between Lida Valley and Independence, a second mail route, opened in March, 1873, ran from Lida, via Palmetto and Fish Lake, to Columbus; and in May of that year, Cluggage and company began operating a weekly stage from Austin, by way of Columbus, to Lida and Gold Mountain—190 rough miles, for which travelers paid a one-way fare of \$30. Lida also was served by freight outfits using heavy wagons and trailers drawn by 16, 18 and 20 animals each. With Wadsworth, the nearest rail connection, 187 miles distant, freight rates were costly and food and other supplies correspondingly high—flour and

potatoes, in the fall of 1872, sold at Lida for \$13.50 per hundredweight, and cabbage and other green vegetables at 25 cents a pound.

But the news occurring most frequently in those notes is that concerned with stabbings, shootings and assorted violences.

"Almost from the day of her birth, Lida City was known as a 'bad little camp,'" Robinson recalled. "For the first several years of the town's life, the nearest full-time peace officer was at the county seat Aurora, more than 100 miles away as the crow flies. This lawless condition prevailed for many years, and the change of county seat from Aurora to Hawthorne in 1883 didn't change matters. As late as the middle 1880s, we never had a full-time deputy sheriff nearer than Silver Peak, 20 miles away. By the time he was summoned to Lida the culprit would have finished his job and skipped."

Throughout the remainder of that afternoon, Robinson told of the early days in Esmeralda County and together we formulated plans for our next day's pilgrimage into the past.

From Goldpoint, a dusty desert road dips northwest into the wide, dry saucer of Lida Valley. After traveling nearly 10 miles on a straight-as-a-die course, bordered thinly with stunted Joshua trees and cacti, we intersected State Route 3 and turned west into a





Douglas O. Robinson was born a few miles from the once active mining camps of Lida and Palmetto. Photograph by the author.

shallow canyon fed by a trickle of water and shaded by willows and cottonwoods. Three miles along this road brought us to Lida.

Time is a great mellow of mining camps, and Lida, on this pleasant May morning, did not look like a place that could ever have been wild or wicked. Edging the village's single street were several wooden buildings, none of which was picturesque, photogenic or even old appearing.

After the town's initial boom of 1872-74, the principal mining and milling property of the region as well as the 40-acre Lida townsite was purchased by General A. L. Page. Property rights were disputed, however, and with the main properties tied up in litigation, the Lida Valley mill was leased to local miners who processed their own ore.

"Money was tight in Lida during this period," recalled Robinson. "There was no cash with which to pay overhead expenses, or even to make division of values secured from ore run through the mill. To meet this difficulty, the silver recovered from milling operations was run into bars of various sizes. These bars later were



Palmetto ore mill site today. Three mills have occupied this location. Photograph by the author.

sawed into smaller sizes and passed from hand to hand, taking the place of cash. Poker games were run with no cash on the table—only bullion. In the end most of the silver passed into the hands of local merchants who sent it to the mint for coining.

"This," he added, "was before my day. My own recollections of Lida don't go back beyond 1885. Len Martin owned the Florida mine at that time. 'Blue Dick' Hartman had the Blue Dick; Pete Kiser, the Wisconsin; and Bob Stewart was working the Brown's Hope and Death Valley mines. The old Hiskey and Walker mill was in ruins, but what we called 'the Little Mill' was running from time to time with Fred Vollmer as millman. The boom was past and only 50 persons remained in camp, but they still supported a store, saloon, feed yard, restaurant and rooming house; and the mail came in from Candelaria by way of Columbus and Silver Peak.

"By 1894, the only business concern that remained was a combination store, postoffice, saloon and feedyard; owned by Antone Bacoch. After Tony was murdered in Tule Canyon in 1895, his store was taken over by Jerome Vidovich. The mail now came in from Candelaria by way of Fish Lake and Palmetto.

"It began to look as if the old camp was on her last legs. Mining was in a bad way. The Cleveland panic was on, and silver prices were up and down—mostly down. By the fall of 1897, I decided I'd had enough of Esmeralda County, and left.

"Next time I saw Lida City was in the Spring of 1905. There were a number of new people in town—as a matter of fact, the town was tottering on the verge of a second boom—but only three of the old timers remained, Bill Scott, who made the original discoveries in the mid-1860s; Jerome

Vidovich still ran the store, and John Gomaz was postmaster.

"The first time I ran into Gomaz after my absence of seven and a half years, he greeted me dourly and remarked that he had a lot of mail for me. There were two gunnysacks full of it, bearing postmarks through all the years from 1897 to 1905. There was some first class mail—one letter enclosed a check whose maker had died several years before—but mostly it was old weekly newspapers, mail order catalogs, circulars and political advertising. Also included were several packages of snide jewelry sent on consignment, and numerous follow-up letters demanding that the jewelry be paid for or returned; and still later follow-ups threatening court action and other dire developments. Postmaster Gomaz said my mail had been worrying him and he wanted me to hurry up and get it out of his way.

"A few days before my return, a young man by the name of George Logan had been murdered. As there had been no officer present to take over the case, nothing was being done about the killing. It was just like old times."

Before the end of that year of 1905, Lida's second boom had started.

"It made me feel wonderfully good to see the poor old camp with her head up again, and raring to go! In a few months she had a population of 550 persons, and a business center that included seven stores, a dozen saloons, nine restaurants, a bank, five feed yards, two assay offices, a newspaper — *The Lida Enterprise* — two brokerage offices, several lodging houses, a newsstand, two blacksmith shops and freighting services. Passenger stage lines were making daily trips between Lida and Goldfield—about 30 miles—at a fare of \$5 each way, and daily mail was coming in from

Goldfield. Old Bill Scott was the happiest he had been in years—he had lived long enough to see his camp come back!”

But Lida's second boom was short-lived. By 1906 she was already slipping back. Miners moved away and no new blood came to replace them. The bank failed and took with it \$84,000 of depositors' money. The *Lida Enterprise* moved to Palmetto, then returning to prominence. On top of these reverses came the financial panic of 1907. With banks failing all over the country and mining stocks dropping, the outside money Lida needed for her survival was cut off, and the little mining camp died.

“And that,” laughed Robinson, “is about all of Lida's past that should be told. Even a ghost town is entitled to a few secrets!”

Two or three families still live in

Lida's environs, but aside from cattle raising and a little talc mining there is no way to make a living here.

Somewhere up the canyon we could hear a cowbell tinkling lazily, and a young rooster was making an inept attempt to crow. But none of Lida's several chimneys held friendly plumes of smoke and since our arrival in the old village, nearly an hour before, we had not seen even one human being.

Before continuing to the next ghost town of Palmetto, Robinson suggested we visit a landmark a few miles south of Lida.

Taking the Sand Springs road out of town, we climbed to a low summit, and soon after starting down the other side came to a lone boulder as large as a cabin, composed of black and red volcanic cinders fused into a solid mass.

“This is what old timers called ‘The

Medicine Rock,’” Robinson explained. “I remember well, when I was a boy, how all the Indians for miles around came here to hold council, decide important issues and ‘make medicine’.”

As late as 50 years ago desert tribesmen still were making regular pilgrimages to this strange landmark in the Esmeralda County hills.

Returning to Lida, we again headed west on Route 3, traveling through a region of low, rounded desert hills, thinly forested with small pinyon pines and scrub junipers and showing many evidences of mining activities—small prospect holes, old mine dumps and the crumbling ruins of old cabins and fences. Winding casually among the trees, our road climbed to the 7409-foot saddle between Magruder and Palmetto mountains, rising to respective heights of 9057 and 8885 feet. The summits of these desert peaks were bare of snow but the higher White Mountains, looming conspicuously 25 miles to the west, were blanketed in white.

As it was nearly noon, my escort suggested we drive off the road a short distance to Pigeon Springs and eat our lunch. At one time, he said, this place boasted a mill and smelter, a store, saloon, eating house and sundry other evidences of urban life. But the only building we saw was an old house, evidently vacant for many years. Large cottonwoods, only now coming into leaf, had been planted along the front of the house; and at the far edge of the yard, the water of Pigeon Springs gushed from a two-inch pipe in a crystal-clear stream almost too cold to drink. Watercress was growing luxuriantly in the run-off from the spring, and the flat that spread away on both sides was spongy and green, in marked contrast to the dry hills surrounding it.

At the head of Palmetto Wash, seven miles east of the California line, we drew to a halt in the old mining camp of Palmetto—an absolute ghost town without one remaining citizen to relate its saga of glory and defeat.

Running my eye over the parched hills surrounding the town, and over the dry-as-dust townsite, I shook my head.

“What puzzles me,” I said, “is how this place ever acquired the name of a palm tree!”

Robinson laughed. The first explorers through this country were from the Southeastern United States, he explained. In the scrubby little Joshua trees that speckled these hills they saw a superficial resemblance to the palmetto palms of their homeland. Not knowing the true identity of the plants, they called them ‘palmetto cactuses’. Later, the forepart of that name was



Indian “Medicine Rock” two miles south of Lida. Photo by the author.

applied to the mountain, the mining district and the town.

"Incidentally," Robinson continued, "Palmetto is about the oldest town in this area. It was founded nearly six years before Lida and long before Gold Mountain."

Palmetto mining district was organized in 1866, following the discovery of silver-bearing ore. Within a year a 12-stamp mill was erected at a cost of \$90,000—the machinery for it shipped around Cape Horn to San Francisco, up the Sacramento River by paddle-wheel steamer, and over the Sierra Nevada to Palmetto by heavy freight teams. Although the ores proved too refractory to pay well, the mill produced some \$200,000 in bullion prior to 1871.

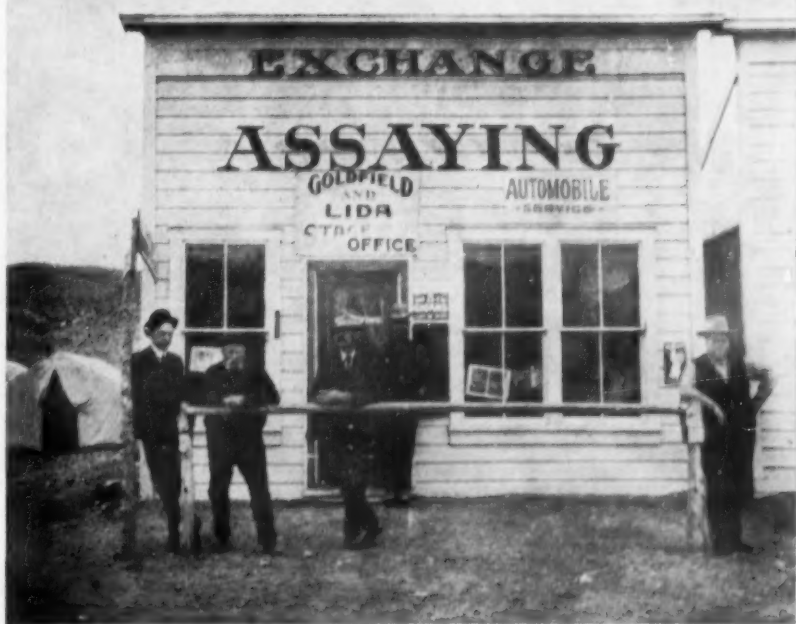
At the time of Palmetto's founding settlers in Southern Nevada still were being harassed by Indians, and citizens of the new mining camp petitioned for and were granted the protection of a military outpost consisting of six soldiers under command of a sergeant. This small garrison kept the peace in the town and its environs until March, 1872, when the post was decommissioned and its men transferred to Wau-coba, in Inyo County.

During its several periods of activity, the Palmetto mine produced more than \$6,500,000 in bullion, but little tangible evidence remains of the town it supported. On a hillside overlooking the townsite stands a tall, square brick chimney, crumbling at the top and cracked down one side. Spread over the hillside, below the chimney, is a maze of stone foundations and retaining walls which have supported, at various times, three separate mills. Between the old mill ruins and the road is a small flat, densely overgrown by rabbit brush and shad scale, and in this flat stand the roofless walls of two stone ruins which formerly functioned respectively as Palmetto's postoffice and stage station.

After the Palmetto of the early days dwindled away, the camp had a revival in 1906. Numerous places of business were established, including a newspaper, *The Herald*. A new town, New Palmetto, sprang up a couple of miles down the canyon.

"New Palmetto was never more than a rag-town," laughed Robinson. "As a matter of fact, I never saw such a big boom from so little powder!"

Searching over the sunny flat where ruins of the old rock stage station and post-office protruded from the desert brush like broken fangs, we found the usual reminders of a civilization that has been and gone—old square nails, and bits of purple glass, rusty mule



Above—Death Valley Scotty, photographed in Lida in 1905 by Douglas Robinson. Scotty was then about 35 years of age.

Below—Lida in 1905. Photo by Douglas O. Robinson.

shoes and tin cans that crumpled at our touch.

Our plans of the previous evening included a visit to the old ghost town of Sylvania, on the California-Nevada state line about five miles from Palmetto. But planning and doing are two different matters and now we realized that time had been slipping through our fingers! The sun was low in the

west, a definite chill crept into the desert air and the junipers and dwarf Joshua trees were beginning to cast long shadows across the hills.

Completely satisfied with our pilgrimage into the past, we turned back toward Lida and Goldpoint, and the hot supper we knew would be waiting.

Sylvania would be good for another adventure, on another day.

Perhaps the Thorny Plants Are Useful

In a 300-acre garden near Phoenix, Arizona, W. Taylor Marshall is seeking the answer to a question which has puzzled the scientific world for many generations—how may some of the thorny plants of the desert be grown to serve a useful role for mankind? He has not found the answer yet—but while he and his staff work in the test gardens they are also providing a fascinating display of desert botany for the thousands of visitors to the Desert Botanical Gardens.



W. Taylor Marshall, president emeritus of the Cactus and Succulent Society, and director of the Desert Botanical Gardens at Phoenix, Arizona.

By ROBERT FRANKLIN AMES
Photographs by the author

ON HIS 30th birthday, W. Taylor Marshall received from his daughter as a gift, a pot of thorny plants. And that was the beginning of a career which led eventually to his recognition as one of America's greatest authorities on cactus.

Today Marshall is director of the Desert Botanical Gardens at Phoenix, Arizona. Because of his many years of research into the propagation and nature of the shrubs of the desert, the Gardens under his direction are a mecca for scientists from all over the world. They are also an attraction to many thousands of tourists who have heard of the gardens of strange plants which thrive in this land of rocks and sand.

In Arizona, if you start asking questions about cactuses, sooner or later you will be told to go see W. Taylor Marshall. "He knows everything about the thorny shrubs of the desert."

At 70 years of age he is still a student, as anyone will quickly learn when talking with him. His gardens continue to expand, and his experiments now extend to desert shrubs which he believes will become important commercial factors in the economy of the Southwest.

Taylor Marshall's start in life was about as far removed from the field of science as one could imagine. Born

May 5, 1886, in Philadelphia, his father was a cigar manufacturer, and determined that his son eventually should carry on the business he had founded.

After training in the cigar business young Marshall came West to work in the firm's California branch. He arrived in 1905 wearing cowboy clothes and a six-gun, having been told this was the accepted costume west of the Rocky Mountains.

His father had other ideas, however, as to how a cigar salesman should be attired. In deference to his father's wishes, he began calling on the trade a few days later togged in a Prince Albert coat, stovepipe silk hat, dress shoes and a white shirt.

Marshall was in the tobacco business for nearly two decades, but he now confesses he never cared for his job. Finally he broke away and became a salesman for a wholesale candy concern, and later added groceries to his line.

Eventually he was transferred to desert territory—a route that none of the other salesmen wanted. It was rough going in those days, but he was not a quitter, and he began to learn that the desert country had a charm of its own. He wrote orders for Dick Wick Hall in Salome, Arizona, Death Valley Scotty, and Desert Steve Rags-

dale who is still operating at Desert Center in the Chuckawalla Valley. He called at the general store at old Blythe Junction which in 1914 had been renamed Rice in honor of the engineer who built the railroad to Blythe. His route included remote mining camps as far north as Nevada.

The desert territory which had been a nightmare to previous salesmen began turning in more business than many of the populated areas, and the company took Marshall off of his commission basis and put him on straight salary.

Then came that 30th birthday when his daughter thought that cactus plants would be a proper birthday gift for a father who spent most of his time in the desert. Marshall planted them in his garden and began seeking information as to their growth and care. He could find very little information on the propagation of cactus—in English. Most of the cactus experts at that time were in Europe, and the textbooks on cactus were written in German, and the scientific names were all in Latin.

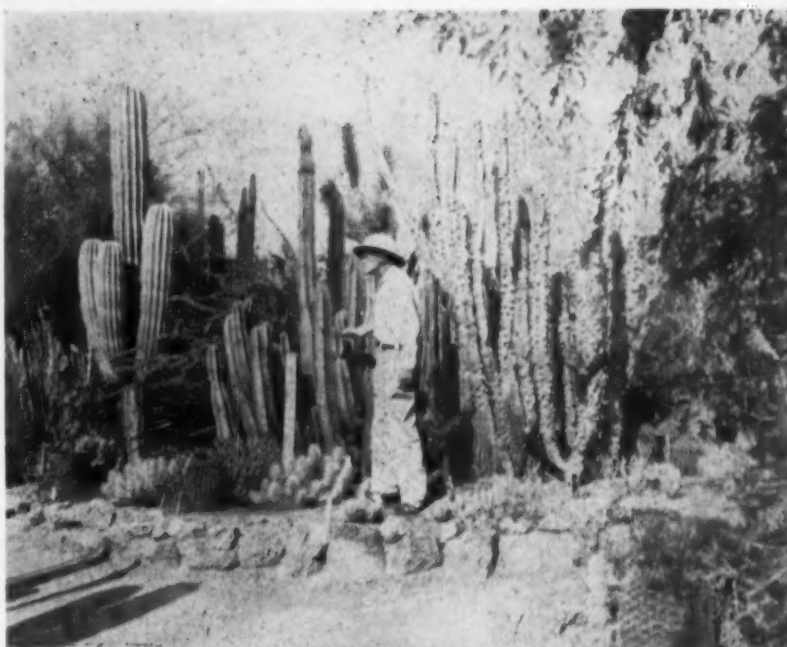
But cacti had a strange fascination for this grocery salesman, and he refused to be turned aside by the barrier of language. Although he had only an eighth grade education, he began to study German and Latin. On his sales trips to the desert he carried botany texts along with his samples and order blanks. In the arid region where many species of cacti were found in their native habitat he gradually schooled himself to identify the species by their German and Latin descriptions. He found himself making detours to find the locale of new species.

As his interest deepened he joined the Cactus and Succulent Society of America. At that time the members were interested mostly in building up their collections. His research went beyond that. He observed the nature of the plants under different conditions, their mode of life, and the evolutionary pattern of their development. He also began contributing to the National Horticultural Magazine and served for a time as assistant editor in the field.

In 1938 he was elected president of the Cactus and Succulent Society and during his four-year term of office the program of the Society underwent a marked change. Instead of merely collecting new species, the organization began to devote more time to serious study and research.

In 1940 Marshall gave up his salesman's job and went into business in Highland Park, California. By 1946 it was a thriving enterprise, and at 60 he was ready to retire and devote his time entirely to his hobby. In the meantime he had written five textbooks to make sure that future botanists would be able to study their cactus in the English language. These books are still in wide use in the colleges.

The Cactus and Succulent Society, of which he was now president emeritus, had become co-sponsor of Arizona's Desert Botanical Gardens. Financed under a grant from the estate of Mrs. Gertrude D. Webster and by public support, the Gardens were in need of re-organization, and Marshall was invited to become its director.



Marshall stands between two variations of the Senita or Old Man Cactus. He points to the conventional form found in Southern Arizona, Sonora and Baja California. Behind him is a Totem Pole Cactus, a deformed strain found only in limited ranges of Baja California.

It was a tremendous challenge. Only three acres of the available 300 had been planted, and the project had only a modest administration building. Here he would be able to build something very close to his heart—a place where

he could grow and study and make further contribution to man's scientific knowledge of the plants of the arid world.

There was another factor which intrigued him. During World War II, bombing and military operation had done great damage to the German botanical gardens at Dahlem and Frankfurt, and to the Dew gardens in London, where for nearly 300 years much of the plant research had been centered.

At Phoenix there was an opportunity to develop an American botanical garden which would take up the research work where the overseas gardens had been forced to leave off. Marshall accepted the challenge.

During the past summer I met the director at his headquarters. When I phoned for an appointment he said: "Come on over to the Gardens. We are closed for the summer, but I will be glad to talk with you."

There I met a balding man with abundant energy, and his enthusiasm for the task he is doing was at once apparent. He told me that the Gardens had been founded in 1939 by the Arizona Cactus and Native Flora Society. The state had donated 300 rocky acres in Papago Park. Before and during the war little work had been done, and for a time the Gardens had been closed.

But a new era began with the arrival

Agave is a potentially important source of alcohol.





Marshall is examining an imported specimen of candelilla, source of a fine grade of wax. His goal is to find a way to grow this shrub commercially in United States.

of Marshall as director. The scope of the Desert Gardens now extends to all shrubs of desert habitat.

He showed me the voluminous records where each new plant is classified with data as to its habitat, soil analysis, altitude, etc. I saw the herbarium he had established where plants are marked and identified for visitors.

Under his direction, living quarters and other buildings have been erected; walks and parking lots laid out, and rest rooms provided for visitors. One large room in the administration building is filled with interesting displays with printed data describing the desert flora available to the public.

More than 150,000 visitors annually tour the gardens. Admission is free and every possible facility is provided for their guidance and information. Cameras are allowed if permits are obtained, but tripods are forbidden because of the danger of damage to tiny plants.

More than 10,000 species of plants grow on the 52 acres now in gardens. The remaining 248 acres are being reserved for some special projects the director has in mind.

For years he has felt that the desert must contain many shrubs which would become important commercially if grown under cultivation as the agave is in Mexico. He believes this plant may become the source of valuable

products for the drug and chemical trade in the United States, and has been experimenting with both native and imported plants. Reaction to water, sun, and frost is carefully noted. When a suitable agave is found he plans to plant 50 acres of it so that the laboratories may have an ample supply for their experimental research purposes.

Marshall and his staff are experimenting with another plant which may be even more profitable than agave. This is candelilla, which grows wild in the Big Bend country of Texas and in northern Mexico. The plant produces a wax which is much in demand in the manufacture of chewing gum, and high grade waxes.

At present most of the supply comes through bootleg channels from the harvesting of wild candelilla. Experiments at the Desert Botanical Gardens are nearing completion, and Marshall expects soon to have considerable acreage planted to this shrub.

Many factors enter into such commercial experiments — the number of acres required to support a desert family, the proper spacing of the plants when grown under cultivation, the effects of rainfall and frost and forced growth — and the cost of harvesting and processing it.

In addition to agave and candelilla, another project is in progress — the

development of a food plant which can be raised commercially on the desert without irrigation.

In North Africa and South America the tuna—the fruit of the prickly pear cactus—is sold on the market along with apples and pears and citrus varieties. Marshall believes that a cactus fruit may be developed which will become popular on the food markets of United States.

But such projects as this take time and infinite patience since there are many factors to be considered. Marshall's philosophy is summed up in this sentence: "Nature has been growing these desert plants for centuries—why should we hesitate to spend a few decades finding a way to make them a source of food and profit for our people?"

W. H. Earle, chief horticulturist at DBG examines a 180-year-old giant saguaro.



ON DESERT TRAILS WITH A NATURALIST - XXV

The Beetle worth Its Weight in Gold

W. G. Wright knew he had made a valuable discovery when he first saw the strange insect emerging from the native palm trunk. For 11 years he kept that secret to himself and for those 11 years he had a world-wide monopoly on their sale to museums and universities. Here is the strange story of the eccentric scientist and the even stranger story of the fantastic beetle which was once worth its weight in gold.

By EDMUND C. JAEGER, D.Sc.
Curator of plants
Riverside Municipal Museum
Sketch by Lloyd Mason Smith

7HERE LIVED in San Bernardino during the late 19th and early 20th century a most unusual and mysterious gentleman, considered by his neighbors as an eccentric because he spent most of his time collecting and studying butterflies. With horse and buggy and on foot he traveled the roads and trails of both the mountains and the deserts, always bringing back in neat collecting boxes numerous specimens of butterflies and other insects, specimens that often proved new to science.

This man was W. G. Wright, who in his later years wrote the standard reference book, "West Coast Butterflies." Few copies of this monumental work are in existence because most of the plates and printed pages were destroyed in the San Francisco fire of 1906, before many copies had been offered for sale.

I am the possessor of one of these rare volumes. It was given to me by Samuel B. Parish, dean of Southern California botanists, who as executor of Wright's estate upon his death, distributed the few remaining copies to a



Rory O'Rourke examines a hole-ridden palm log found in a wash northeast of Indio, California.

number of aspiring young naturalists.

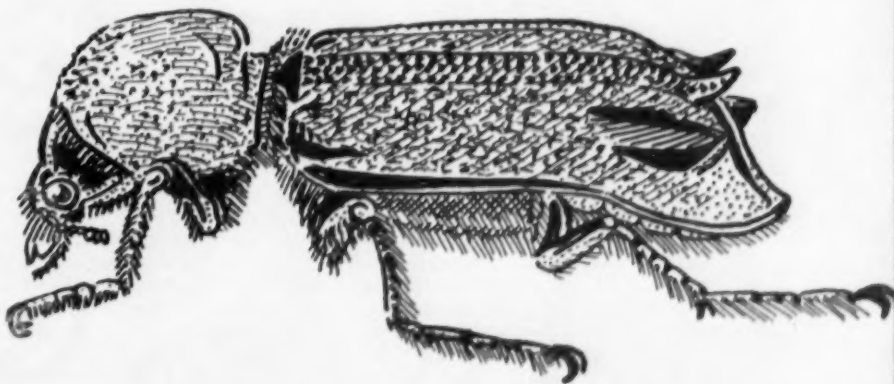
Wright usually went alone on his often lengthy desert journeys, camping out for weeks at a time in places then practically unknown to the average traveler. His neighbors were curious about his strange comings and goings, but learned little from him either about his destinations or discoveries. To their questions of where he had been, they generally got the laconic reply: "Oh, out on the Mojave."

It was after one of his long drawn-out "Mojave journeys" that he returned with some very valuable beetles, so unbelievably rare and unusual in appearance that he offered them to leading museums for sale and, it is said, got nearly a thousand dollars a pair for them! At least three such sales were made before the price came down: to the British Museum, to the Russian museum at St. Petersburg, and, I believe, to a museum in Paris.

For 11 years Wright kept the secret of where he had found his specimens,

refusing to divulge the "type locality," as it is called by entomologists. Many of his friends, either anxious to collect the beetle for their own collections or for possible sale, tried to follow him, but he was as clever as the wariest of gold prospectors who has hit it rich. They watched secretly for days to see him start out in the late summer on his usual "Mojave journey," and then, by following closely behind, hoped to solve the great mystery once and for all. However, as soon as Wright got well on his way he would make camp in some desolate spot and simply stay there until he was sure his pursuers had gotten tired of waiting and had returned home.

For those 11 years the home of this strange, fairly large beetle with a dark brown elongated and cylindrical body and a large, rounded head, remained known only to Wright. It was classified with the scientific name of *Dinapate wrightii*, in honor of its discoverer, by a fellow entomologist, G. H. Horn.



It was quite by accident that someone other than Wright chanced upon one of these "thousand dollar insects." An engineer, or a surveyor, I forget which, happened to be walking down Palm Canyon above Palm Springs, California, one hot September afternoon and came upon, by merest chance, a single wing cover of this rare insect at the foot of one of the Washingtonia palms. Since this man was also well-informed in the field of entomology, he immediately recognized the great scientific import of his discovery. The secret was out! The mysterious beetle *Dinapate wrightii* (*Dinapate* was coined from two Greek words meaning "clever deception," probably in reference to Wright's wily tactics) lived in the trunk of the desert fan palm. Since that time this curious hard-to-find beetle has been taken by a number of diligent entomologists and the price on the open market quickly fell, so that today a pair brings only a few dollars. The secret of the California palm-borer, as this beetle is popularly known, was worth as much as a vein of gold to Wright.

What threw most of his followers completely off the track was the round-about route he took to Palm Canyon, always going out through Cajon Pass to the Mojave Desert and then circling around the San Bernardino Mountains and through Morongo Pass down to the Colorado Desert and Palm Canyon. Wright seldom paused in the village of Palm Springs, but went directly to the canyon without saying a word to anyone. There he hacked-open newly fallen palm trunks in quest of his curious insect treasures. Often his searches were fruitless, but sometimes he found the beetles ready to emerge from their labyrinthic tunnels deep inside the prostrate logs.

Perhaps you have, in some of your wanderings among the oases of native palms on our Colorado Desert, noticed finger-sized holes leading to the interior of brown fallen trunks, holes too deep to be the work of woodpeckers. These openings mark the sites where the adult beetle borers have emerged. The females lay their eggs in the leaf buds of living palms and shortly thereafter broods of larvae are busy devouring their way into the center of the elongate trunk. The galleries they make are tightly filled behind them with sawdust-like frass and are gradually made larger by the growing larvae. In time, after several months, these larvae, called grubs, penetrate to the very interior of the palm where they complete the life cycle. Later after boring to the exterior they emerge as adults.

H. G. Hubbard, one of the early collectors of *Dinapate*, regarded the finding of a young brood of larvae to be one of the most interesting events of his entomological life. "It is hard to realize the enormous extent and dimensions of the *Dinapate* galleries," he wrote. "If one finds 20 or 30 holes in one of the Washingtonia palms, the interior probably is entirely eaten out from end to end, and one can follow the frass-filled galleries, over one inch in diameter, for 20 feet up and down the trunk following the grain and without diminishing sensibly in size. Then think of the yards and yards of smaller galleries made by the larvae while still young. Such extensive and prodigious borings cannot be made in one or two years, and certainly not in any trunk of moderate size for it would not yield enough food."

The larval tunnels cross and recross each other in an erratic pattern practically destroying all the fibre in the region attacked. The feeding grubs may be heard making a sharp click-click sound with their powerful mandibles. The sound they make can be imitated by clicking the nails of your first finger and thumb together.

After a dormant period when the grub is being transformed into a pupa and then into the form of an adult beetle, the adults emerge one at a time, after dark. Fortunately for the palms, of the many larvae that feed within the logs, only a few live to become full-sized adults, as attested by the few emergent holes.

Occasionally entomologists find a palm log on private property in which he can hear the larvae at work. He then saws the trunk into sections, takes them to his home or laboratory, places them in a suitable cage of netting or screen, and then patiently awaits the late summer night when some will emerge as beautiful dark brown adult specimens.

Most of the beetles closely related to the California Palm Borer are very small; *Dinapate* is the largest of the group. One of the most interesting of its relatives is the long dark brown Cable Borer, the adults of which frequently bore into telephone cables, permitting the entrance of water and causing short-circuiting of the wires.

Next time you visit any of the several palm-filled gorges on the Colorado Desert, look for these curious exit holes of the beetle that was once worth its weight in gold. However, please do not cut down any palms in search of them; all palms are strictly protected by State law now and it is a serious

offense to cut or destroy this beautiful native tree. Be content to know what has caused the openings, and, if you are lucky, you might even be able to hear the larvae clicking away inside. Always enjoy, never destroy.

THE *Desert* MAGAZINE CLOSE-UPS

Elizabeth Rigby, author of this month's "The Elusive Hop Hornbeam," is an outstanding example of what can happen to an Easterner who falls victim to the desert's charm. Born in Maryland, a Smith College graduate, and a resident of New York City for many years before coming to Arizona, she writes:

"If anyone then had told me that I'd enjoy hiking up rocky canyons, studying birds through binoculars, or counting the number of spines in the areole of a cactus in order to identify the plant, I'd have thought that person a bit daft. The fact remains that I do enjoy these things, and that much as I once loved the big city, I'd find it hard to go back."

Mr. and Mrs. Rigby live in Sedona.

* * *

Robert Franklin Ames, who tells the story of W. Taylor Marshall, "Perhaps the Thorny Plants Are Useful" in this month's *Desert*, came to California from Iowa during the latter part of the war. Now a resident of Burbank, Ames is a printer by trade and someday hopes to devote his full time to writing and traveling.

* * *

Joe Kerley, who wrote this month's "The Day We Ate Prairie Dogs," has spent the majority of his adult life on the Navajo Reservation. In 1914 he took a job at his brother's trading post near Leupp, Arizona, but shortly thereafter left for military service in the World War. When he returned in 1919 he went to work in the extreme northwest corner of the reservation. In the 21 years that followed he managed various posts throughout Navajoland.

"The Navajos are friendly, intelligent, industrious and fun-loving people," Kerley wrote. "They readily take to the American way of life with all its gadgets. Given half a chance they will hold their own in any walk of life."

He is now retired and living in Winslow, Arizona, where he is "happy, healthy and enjoying the Atomic Age."

DESERT MAGAZINE

HISTORIC DESERT WATERHOLE II

Old Woman Springs...

First the Indians, then the prospectors and still later the cattlemen came to depend on the gushing waters from the Old Woman Springs. It has served them all well and today continues to flow forth its life-giving stream at the base of the San Bernardino Mountains in California.

By WALTER FORD

IN 1855 A survey party under Henry Washington stopped at a spring at the base of the San Bernardino Mountains, 15 miles southeast of the present town of Lucerne Valley. The surveyors found a group of Indian women camped around the watering place destined to become an important camping spot for cattlemen and prospectors who later entered the area, and Washington promptly christened it "Old Woman Springs."

Henry Washington is undoubtedly the Colonel Washington who is credited with establishing the San Bernardino base and meridian and naming other points along the route, but the records in the U. S. Land Office in Los Angeles make no reference to any military title. The entry shows that the contract to survey the area was let to a Henry Washington in December, 1854, and that the job was completed in 1855.

There are contradictory opinions as to why old Indian women were often found camped around waterholes in the early days. One is that once their period of usefulness as workers had ended, they were banished from the regular camp and forced to eke out an existence at some distant location. However, there is little evidence to support the conclusion that any of the Western Indian tribes were so lacking in social responsibility, and the most generally accepted theory is that the Indian women found around waterholes were merely waiting the return of their men from hunting or raiding expeditions.

Undoubtedly, Old Woman Springs was at times the permanent camping place for large groups of Indians. W. W. Johnson, caretaker of the ranch on which the springs are located, told me that when he first arrived in this area

45 years ago, arrowheads, spearpoints and broken pottery could be found in abundance around the springs.

Albert Swartout, who owned Old Woman Springs for many years, first located on the land now occupied by the Box S ranch, but relinquished the claim when he decided that the land was not suitable for cattle raising. Later he filed on the land surrounding Old Woman Springs and established a herd of White Herefords. He greatly increased the flow of water by boring a tunnel in the hill back of the original spring.

In his Water Supply Paper 224, published in 1909, Walter C. Mendenhall lists two springs on the Mojave Desert under the name of Old Woman Springs, one at the base of the San Bernardino Mountains and the other near Danby Dry Lake. Apparently the two widely separated springs with similar names caused considerable confusion. In a like water supply paper for the United States Geological Survey, published in 1921, David C. Thompson stated that the name of the Danby area waterhole had been changed to Sunflower Spring. Mendenhall described the water at the original Old Woman Springs as being alkaline, but Thompson's description 12 years later states that the water was

of a very good quality, the improvement no doubt due to the development work on the springs during the intervening years.

The ranch on which the springs are located was the object of litigation a few years back, but it is now owned by J. Dale Gentry of Los Angeles. The area adjacent to the Twentynine Palms road leading to the ranch is one of the Mojave's popular wildflower sections, but like most other flowering parts of the desert, the variety and abundance of the flowers are governed almost wholly by the amount and timing of the preceding winter's rainfall.

One of my visits to Old Woman Springs happened to follow a particularly wet winter and I was treated to a dazzling display of wildflowers that in my memory was equalled only in 1938, the year in which the amount of rainfall reached catastrophic proportions in some parts of the desert.

The caretaker willingly showed me around and permitted me to take photographs wherever I desired. While I believe that such privileges would be readily extended to any other visitor, those who contemplate visiting Old Woman Springs should understand that they are on private property and make their plans accordingly.



The author at Old Woman Springs.

The Elusive Hop Hornbeam...

The tree known as Knowlton—or Western—Hop Hornbeam is a Southwest rarity. So elusive, in fact, is this member of the birch family that its recent discovery in a hitherto unreported area by Professor Chester Deaver and the Sedona Garden Club made botanical headlines.

By ELIZABETH RIGBY
Photographs by the author

A TREE, I HAD always thought, is a rather conspicuous object, and American naturalists have had plenty of time to learn about our native species; so I was more than surprised recently when I accompanied a group of neophytes on a plant identification field trip through Boynton Canyon in northern Yavapai County, Arizona, lead by Professor Chester F. Deaver, distinguished botanist of Arizona State College in Flagstaff.

Professor Deaver is one of the foremost authorities on the plants of this region. He also is a modest and quiet man. When he stopped suddenly in front of a small nondescript tree near the head of one of the canyon tributaries and let out something very like an Indian war whoop, then started to dance a jig, it was not hard to guess

that he had found something out of the ordinary.

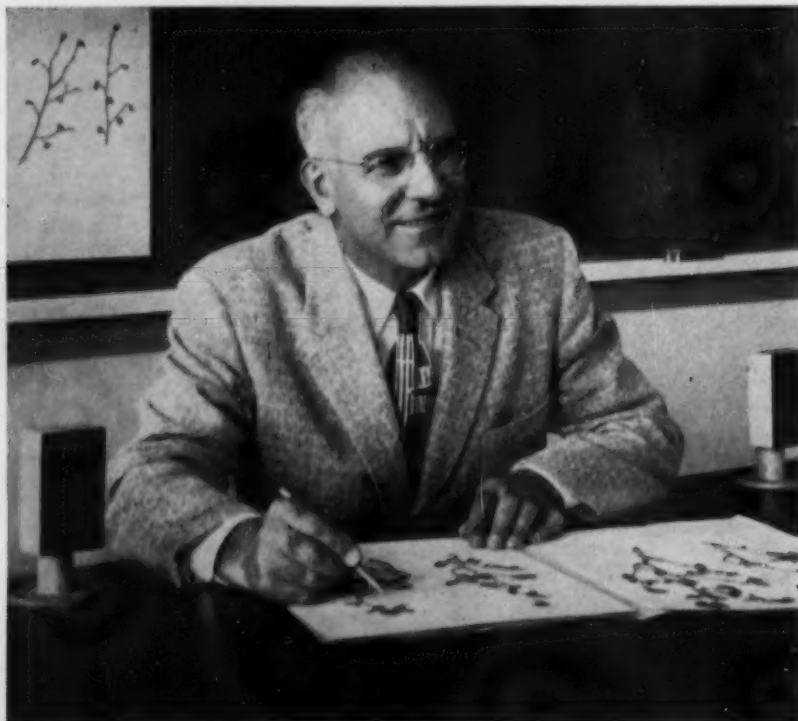
Examining the slender, mole-gray, scaly trunk that engaged his attention, I was at a loss to understand his excitement. This little tree, not much taller than a sizeable shrub, with its toothed, ovate, birch-like leaves hanging sparsely from the reddish brown twigs, and its bole so slim that we might have clasped it between two hands — what was so extraordinary about it?

"Look, look here!" our mentor shouted. "I want you all to see this. It's a Knowlton's Hop Hornbeam!"

"Is it unusual to find it here?" someone asked.

"Here?" he cried impatiently, "It would be something anywhere!"

Professor Chester F. Deaver, discoverer of a previously unreported stand of rare Knowlton Hop Hornbeam in Boynton Canyon, Yavapai County, Ariz.



We began to pay more attention to the unspectacular specimen, and questions about it arose in our minds. Professor Deaver spied another example of the rarity and like a mountain goat was climbing over boulders and rocks to reach it.

Later, at home, I located a distribution map for the tree, and understanding dawned. On the map there were only four dotted areas—two of them very small, the other two not much larger—to mark the places where the Western Hop Hornbeam is known to grow. On our field trip we had, due to the lucky accident of an expert's presence, stumbled upon what can now be a fifth dot on the map.

The Western Hop Hornbeam (*Ostrya knowltoni* Coville), related to but distinct from the far less exclusive eastern species, *Ostrya virginiana*, to date has been officially reported only from the Grand Canyon of the Colorado, where a few hundred grow at altitudes of 6000 to 7000 feet under both north and south rims; a restricted area in southeastern Utah; along the West Fork of Oak Creek in Arizona's Oak Creek Canyon; and from southeastern New Mexico in the Guadalupe and Sacramento Mountains and an adjacent area across the Texas border. Some authorities would even eliminate this latter habitat, maintaining that the hop hornbeams found there are intermediate between the eastern and western forms and constitute a distinct species to which they give the name of Bailey Hop Hornbeam.

Never numerous even in the places it frequents, the Western Hop Hornbeam has proved an elusive as well as an exclusive tree. The first white man to describe it was Frank Hall Knowlton, botanist and paleontologist of the National Museum, who spent several months in Arizona and New Mexico in 1889 as a member of the United States Geological Survey.

While working at the Grand Canyon he hiked down the rough trail named for that famous teller of tall canyon tales, John Hance. He had not gone far before he came upon a tree which probably made him react much as Professor Deaver had. It was a hop hornbeam, a kind of tree which Knowlton had thought was not to be found within 2000 miles of the Grand Canyon. Yet there were the unmistakable bladdery, hoplike fruits and the characteristic birch-scale bark. There were, however,



Scaly bark identifies Hop Hornbeam as a member of the birch family. These trees are relatively straight and tall for the species.



Growing amongst boulders and sheer rock walls, this Hop Hornbeam has twisted and turned its way up into the life-giving sunlight.

certain differences apparent to his practiced eye. It was a new species and being a good scientist, Knowlton took along specimens of leaves, fruit, bark, and twigs in addition to the notes he had made.

What Knowlton had found was no tall tale but had he not preserved the evidence some people might have thought so, because for a long time no one else could find any other like it in the Grand Canyon or elsewhere.

The search was diligently made, but the new species proved as hard to track down as a desert mirage. The first scientist to confirm Knowlton's discovery was not a botanist but an astronomer, Percival Lowell, who found the tree not in the Grand Canyon but a few miles up the West Fork of Oak Creek south of Flagstaff. Nor was it a botanist who clinched the fact that Knowlton's Hop Hornbeam was no dodo. Ornithologist Vernon Bailey relocated the trees below the rim of the Grand Canyon.

Trees are not often so rare as that. Why should this one be? I have not been able to find out definitely, but there is a clue—or at least a surmise—supplied by Mildred Johnson who, with her artist husband, Harry, owns the deeded property at the mouth of Boynton Canyon. Another name for Hop Hornbeam is Ironwood, although *Ostrya*, a member of the birch family,

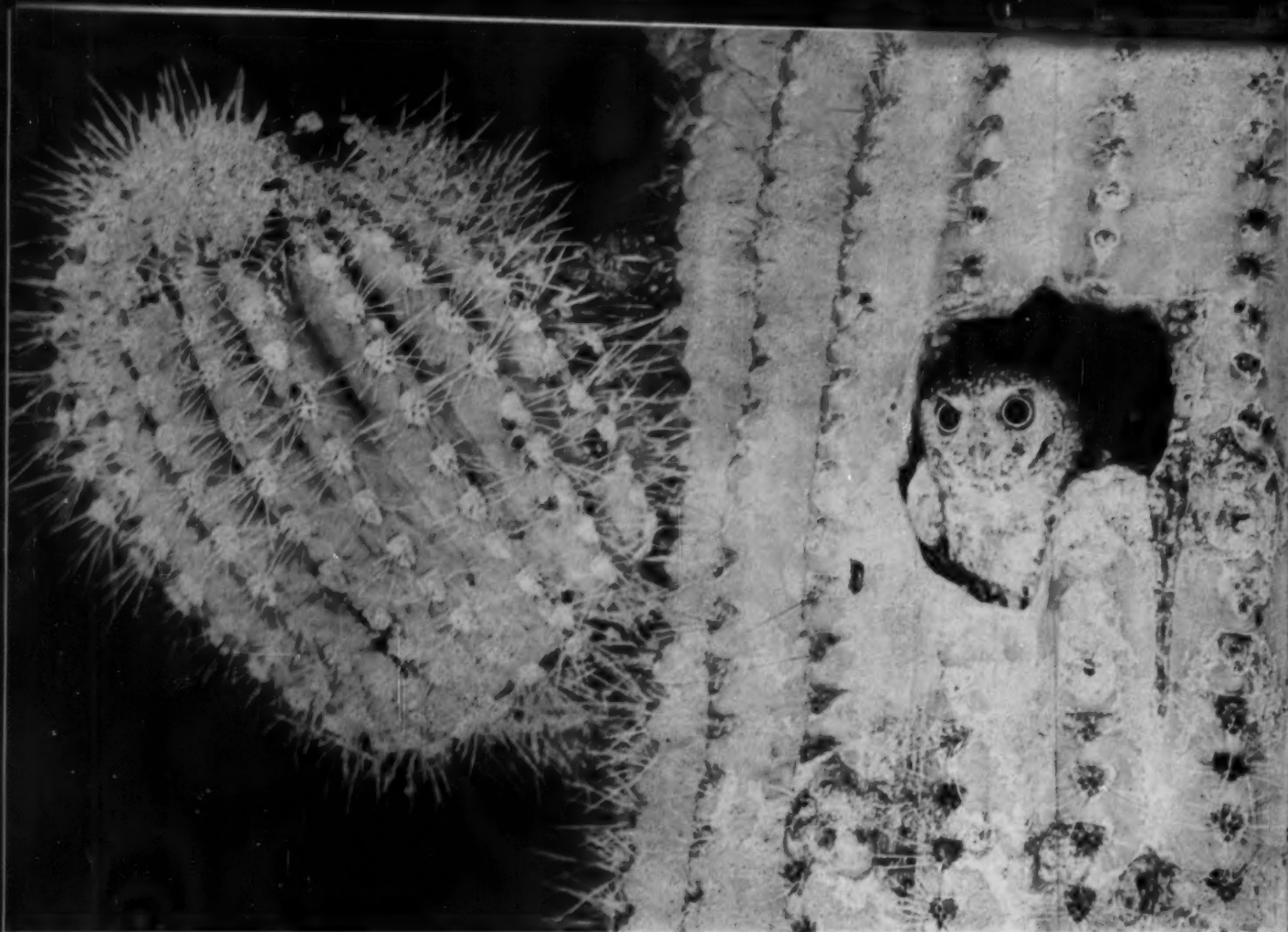
is no more related to the true Desert Ironwood (*Olneya tesota*), one of the *Leguminosae*, than it is to the true hop vine. Superficial resemblances account for the confusion of names in both cases. The fruit of the hop hornbeam tree looks very much like the fruit of the vine (*Humulus lupulus*) which is used in making beer. And its wood, like that of desert ironwood, is extraordinarily hard, heavy, and fine-grained. Mrs. Johnson believes it is possible that the Indians made such frequent use of the wood in the old days that the trees came near to being exterminated.

It cannot happen irrevocably to this one, I feel, so long as the tree seeks for its home spots as it has often chosen, lone and lovely places far beyond the highways, places such as the canyon head at Boynton. To reach it you must drive off the pavement a good many miles and then hike more miles uphill between beautiful redrock walls. The Indians obviously loved the place, since the ruins of their prehistoric cliff dwellings are everywhere. Heading into the canyon you pass through several life zones, starting with the semi-arid Upper Sonoran with its yuccas, cacti, and manzanita, and ending in the timbered Transition among yellow ponderosa pines and white oak, with incursions from the Canadian on shaded north slopes. And, at last you

come to the breathtaking natural shrine where 18 Western Hop Hornbeams grow.

There is a spring nearby and a sometimes-running stream and the canyon narrows to a mere slit between overhanging rock walls. You have to tilt your head far back to glimpse the sky above those walls. Maidenhair fern clings to the rock beneath the overhang, and tumbled boulders testify to the power of the water that now and again falls into the canyon from above. On a rock near the end of the canyon box are some Indian petroglyphs and at the very end, beyond which no human could walk or climb, is a raised stone altar built by Nature and decorated with vines and ferns.

Worshipping at this shrine is a single Western Hop Hornbeam tree. Unlike those of its kind that guard the approaches and whose pendulous limbs twist and contort like the arms of pagan ritual dancers, this one grows, contrary to its nature, straight up for 15 feet. It can grow no other way, so straight and narrow are the walls of rock that guide it on its search for light. After it overcomes the walls it turns and twists its trunk as it likes to do, and leans its gray shoulder on a flat shelf of rock, then turns again and makes a lacy pattern of yellow-green with its delicately serrated leaves against the opposite wall.



Desert Owl

By NELL GRIFFITH WILSON
Kenwood, California

From his apartment doorway, high above
the ground,
Wide-eyed and staring, he surveys the
desert scene;
No rent to worry him, free light and heat
abound,
Housed in an old saguaro, cozy and
serene.

• • •

QUEEN OF THE PAINT BRUSH

By MIRIAM R. ANDERSON
San Bernardino, California

She loves the shape and texture of a leaf,
Wild lilac foaming frosty on a hill,
Forsythia that on the mountains spill
Their blooms in golden bas-relief.

She loves the stormy sky, the earth, the
trees,
The gentle morning winds that stir the
boughs,
The rushing evening gale that through them
soughs,
For she sees God reflected through in these.

She loves all life as Nature molds it here,
One golden sun-mote, and the cotton clouds
That frame the desert so aloof and proud
And edge the flaming sunset bright and clear.

She takes up cobalt blue and azure gray,
To reproduce on canvas as she may,
Life as it seems in its entirety—
And paints a dream into reality.

Photograph by Lewis Wayne Walker.

SPRING TAPESTRY

By LOUINA VAN NORMAN
Riverside, California

Yesterday, the fields were dull and brown;
Today, color has brocaded all the hills,
And where the land was silent as a vault,
At dawn an energetic mocker trills.

On barren desert sands the spring has poured
A shower of rose and violet-colored dye
To make a carpet of verberna blooms
Beneath the vivid glow of western sky.

The sudden spell of magic brought a wealth
Of lupine flowers to paint the mesa blue.
And yellow poppies gild the canyon walls
Where yucca spears are pointing true.

Courage

By TANYA SOUTH

Great is Courage. Greater than the
wealth
Of all the earth. And nothing gained
by stealth
Can equal it. For Courage can efface
The hatreds and the wrongs that inter-
lace
The petty, mean intrigues that are so
rife,

And make our strife
Indomitable, deathless and supreme,
To the attainment of our highest
dream.

WHAT HILLS ARE THESE?

By MILDRED BREEDLOVE
Las Vegas, Nevada

What hills are these that leave a heart en-
chained?
Though neither grass, nor underbrush nor
trees
Spread roots above the zinc and manganese?
Nor hide the scars where lead and gold were
veined?

One might not guess how long my heart was
trained
In woodland ways, where wild anemones
Divided time with jays and chickadees,
And summer left the grasses golden-skeined.

What magic do these barren hills possess?
That they deliver me to heat and sand?
No season comes to mountains made of
stone—
And yet their ever-changing, rainbow dress
Wields power that I do not understand . . .
For I no longer call my heart my own.

• • •

PRIMROSE COVERED SANDS

By VIRGINIA L. BRUCE
Hemet, California

The sunset sky hangs low upon the
Primrose-covered sands—
Caressing quiet desert miles with
Gentle golden hands.

White petals open wide as if to
Lift their hearts up high
In answer to the promise of the
Silent evening sky.

Could we but find within our hearts those
Primrose-covered sands
That look to skies to find their quiet
Peace of desert lands!

TSAY-BEGAY

By JOHN L. BLACKFORD

Round House Ruins

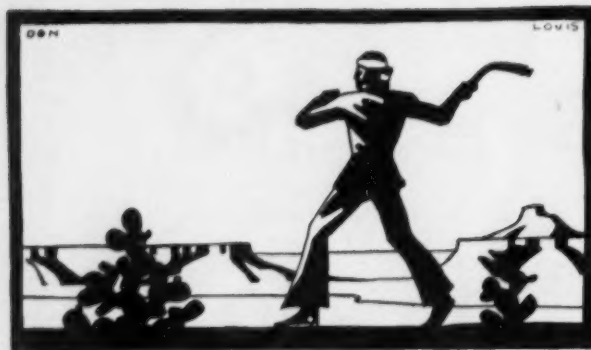
These odd, round cliff ruins, perhaps built as storage bins, are hidden in a huge natural cavern sculptured from massive red canyon walls in Monument Valley of far northeastern Arizona. We know little more of the builders than what the reticent Navajo tell us—that they were the mysterious "Ancient Ones."

View From Tsay-Begay

From their great, symmetrical cavern in Tsay-Begay of Monument Valley, unknown cliff dwellers looked out from atop circular "store-houses" to majestic mesas below. Walled in on every side by stony escarpments and a maze of canyon corridors, they must have been a secretive people. Did they carve the strange petroglyphs of the Valley, or were these the work of yet earlier tribesmen?



The Day We Ate Prairie Dogs...



When man must live off of the land his food tastes may not be too refined. But, this ability to survive—to be self sufficient in a land of scarcities—may build in him a strength of character hard to find among men who live out of tin cans and ready-mix packages.

By JOE KERLEY

I WAS BUILDING a fence back of the trading post and had just quit to eat my lunch when Eric, my author friend, and his bright-eyed wife came along in their little car.

"Invite us to lunch?" she laughed. "If you do we'll share ours with you; we've enough for half a dozen, I am sure."

I made the motion of drawing back a chair.

"Glad to have you. Do sit down," I said.

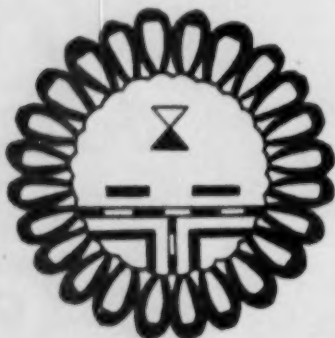
They did. On the dirt, beside me. But before they could open their lunch hamper a Navajo boy came riding along the road.

I called to him and he dismounted and walked over to where we were sitting.

The author's wife, full of curiosity about things Navajo, noticed something furry tied to the back of his saddle.

"What's that?" she asked.

He slanted a glance at me, then said, shyly: "Prairie dogs."

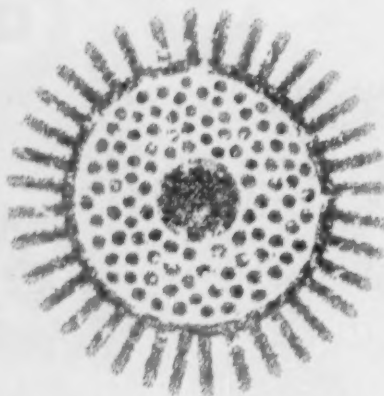


"What are you going to do with them?" she pressed him.

I saved him the embarrassment of answering. "I imagine he's going to have them for lunch," I said. "Are you going to cook them?" I asked him in Navajo.

He nodded.

"I've never eaten prairie dog *a la Navajo*," the author's wife said. "Why don't you dress them out and cook them, Navajo style, then share our food



with us?" she asked the boy, adding to me, "Desert potluck, eh?"

The lad looked at me, hesitating. I told him we would consider it a great favor if he would cook the prairie dogs here as he would at home, and that we would be happy to share our food with him.

His sense of courtesy prompted him to comply. Besides, he was as curious about our food and eating habits as we were about his.

First, he gathered wood from nearby cedars and juniper. Then he dug a hole and built his fire, sprawling on the ground while it burned down to embers.

Then he untied the little prairie dogs and laid their limp bodies on the em-

bers, turning them a few times until all the hair was singed off. Removing them from the coals, he scraped them, carefully and thoroughly with his knife blade.

This accomplished he took them a little distance away, slit them and removed the entrails, using sharp-pointed soapweed blades as skewers to close them up again. With water from my canteen he mixed a mud batter and rolled the little animals in it, skin and all. When they were sufficiently plastered, he lifted them, one by one, and placed them carefully on the embers, pulling some of the hot coals over them with a twig. Then he borrowed my shovel again and covered the fire with dirt.

"It will take a little while for them to cook," he said, as confident as any trained chef.

We talked while our desert delicacy roasted and when the proper time had elapsed the lad got up, uncovered the fire and withdrew the mudshells.

Deftly cracking them, he lifted out the white, tender meat, leaving bones and skin in the mudshell.

I would not choose prairie dog as my favorite meat dish, even cooked *a la Navajo*, which is probably as good a way as any, but with salt from our shakers, and a subduing of lively imaginations, we ate the rather tasteless meat. Had it been called prairie rabbit, instead of dog, we might have relished the feast.

As the boy rode away, his stomach full, the author's wife looked after him admiringly.

"These desert people!" she exclaimed. "So proudly self-sufficient!" Then she turned to me with something like fear in her eyes. "What are we doing to them? What are we taking away from them with our civilization? Are we giving enough to compensate?"

They were good, sound questions, but I turned away—I didn't have the answers.

HOME ON THE DESERT

Mums in a Desert Garden...

Yes, chrysanthemums will flourish in a desert garden, if they are given the proper care. They require a little more pampering in summer, perhaps, than in a more moderate climate, but there is ample compensation for that extra care when September and October come, and the mum garden becomes a gorgeous display of many colors.

By RUTH REYNOLDS

IF EVER THERE is a time when magic walks abroad in our land, and in other lands of the northern hemisphere, it is in the month of May—and May-magic does not by-pass the desert. Here of all places its spell seems most potent. Here where there is so little rain, where sun and sand prevail, one can almost believe that Nature at this time of year has been given a little supernatural assist.

Quite literally this is my desert's golden hour—for the palo verdes are in bloom. All over the desert side their flowering boughs, like golden plumes, are spread on the sun-bright air.

As if this were not enough the landscape also is bedecked with cactus blossoms as dazzling and as many-colored as a collection of precious stones.

Yes, these are days in which to prospect for the desert's rarest gold and most shining gems, and Ted and I are off at every opportunity to stake our claims to countless lovely sites beyond the town. This of course is a pursuit we share with hundreds of other Tucsonans and with many Tucson visitors who come for the winter and often stay over for this show.

At home the desert's May mood invades the garden also. There my young palo verde blossoms though it is as yet thinly branched, and the spring annuals—the cream and crimson "snaps," the red-to-pink and white poppies, the sweet smelling stocks—all still defy the May sun's "Summer coming!" warnings, and the gardener finds herself almost too satisfied with the present to be concerned about the future. Almost—but not quite. The seed, the root, the cutting must be planted or their great flower or fruit potential will never be disclosed. An intolerable thought. So the gardener must plant and anticipate.

My present anticipations are centered on a harvest of beauty for autumn and it is time to act if the harvest

is to be realized. It has been in the back of my mind for a long time—since New Year's Day to be exact. On television that day I watched Pasadena's Tournament of Roses parade and was impressed by the predomin-

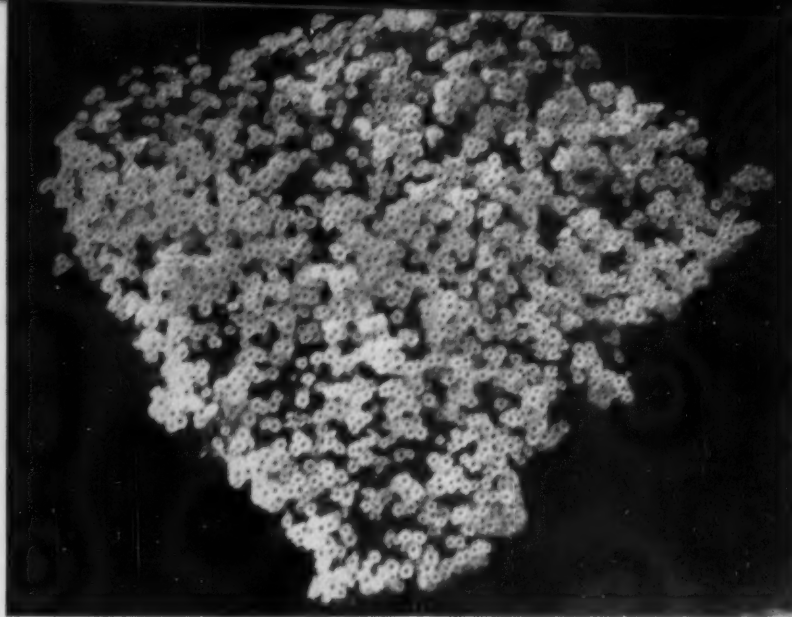
ance—over roses and all other flowers it seemed to me—of chrysanthemums.

They may very well have stolen the show for they were in season there—and in Tucson also, for last year we had no killing frost before February—and these stand-bys of the gardener, and the florist, have been bred to new peaks of perfection. Mums of every size and kind and color are now at home in the garden.

I can remember when they were shaggy clumps of flowers—white or yellow or faded rose—beneath my window when I was a child. Later

Sunnyslope Splendor—exotic, glistening white full centered large flower with a light overcast of green.





Cascading mum varieties are chosen for their exquisite daintiness and for the ease with which they may be trained to hang downward. Edwin T. Merchant photo.

they were large yellow football game accessories.

Now they are an illustrious flower family, comprising many classes — giant exhibition, decorative, spider, spoon, feather, button, cascade and hardy garden varieties. In a general way these terms are self explanatory but the groups are not always clearly defined and each group has many varieties.

Exhibition mums have huge blooms, either ball-like with incurved petals or with reflexed (outcurved) petals. They come in many shades of red, bronze, purple, lavender and pink besides the always glamorous white and yellow varieties.

With good care and systematic disbudding they will produce king sized blooms—even in a desert garden.

The earlier blooming varieties should be chosen for areas that are not frost-free. This applies to all chrysanthemums. Blooming dates—listed in catalogs and supplied by dealers—should be well in advance of dates when frost may be expected. Here—despite last year's exception—and in many other desert areas, this means no later than mid-November, when many exhibition varieties are scheduled to bloom.

While early blooming varieties are not too numerous they are available in such beauties as the pure white Hilda Birch, October 5; the pink to orchid-pink Orchid Glory, October 5; the rich yellow Golden West, October 1. Miss Osaka (October 15) is a giant of light pink with stiff stems and good foliage. It is a 1956 import of Sunnyslope Gardens of San Gabriel, California, a company specializing in chrysanthemum culture and distribution.

Their Sunnyslope Splendor (October

10) is a fine example of the decorative-spider variety. It has a large, full centered flower with a light overcast of green throughout, even at maturity. Its long, loose, slightly drooping petals radiate outward and are hooked at the tips.

Spiders are characterized by long thread-like petals ending in fish-hook tips. Spoons are a variation, having cord-like petals with spoon shaped tips. Feathers are feathery—with long and short petals radiating from a solid center. There is a red feather, Phoenix and a white feather, Sphinx.

Giant mums are achieved by "stopping" and disbudding and the procedure is the same for all varieties. At planting time the rooted plant should consist only of a central stem which is nipped back to about 6 inches. Around July 1, all but two of the lateral growths should be removed. Each of these may be permitted to produce two stems which are disbudded to leave only one bud to a stem. Some gardeners may want to leave only one bud to a plant for a single extra large flower. For me the risk seems too great. A hungry grasshopper might come along and devour it.

To prevent this and to discourage the stalk borer, use chlordane dust or spray applied to the plant and the soil around it. A malathion spray may be used during the rainy season to prevent mildew and to control aphids.

Considering the risks, and the meticulous care required to grow the highly bred types which cannot tolerate even the slightest neglect, the average gardener may find the hardy garden varieties more satisfactory. They make a fine mass display and produce

quantities of flowers for cutting. They come in all the exciting new colors and are known by intriguing names — of which there are long lists.

Improvement in garden mums is well exemplified by Jackson and Perkins' five 1956 "Bird Series" innovations—the golden yellow Baltimore Oriole (September 20) having flat flowers with incurved centers; Titmouse (early October) a clear lavender pink with ball-like flowers; Silver Thrush (early October) with silvery peach flowers that finish a silvery buff; Giant Kingbird (September 25) a rose-pink with buff-tan reverses on the center petals; Macaw, a reddish burnt orange suffused with gold in the heart of the flower. All are improved to produce large three and one-half to six-inch flowers on vigorous, disease resistant plants ranging in height from two to three feet. Giant Kingbird has the largest flowers on the tallest plants, full and well branched. Not only does it bloom early but its petals are frost resistant.

More branches bearing more and larger flowers are obtained by cutting the garden varieties back to eight inches—first at planting time—or May 15 if they are established—and again in mid-June with a third cutting back to 12 inches in mid-July.

There are some exceptions to this rule. Non-branching varieties should not be cut back. Macaw for example grows upright and produces many shoots which bear four and one-half-inch flowers at their tips.

Chrysanthemum culture is a bit exacting. For them desert soil must be enriched. A shovelful of aged manure and a handful of super phosphate for each plant deeply spaded in and soaked with water a week before planting time should be supplemented with two or three feedings of a complete fertilizer during the growing season. But all feeding should stop two weeks short of blooming dates. A light manure mulch at monthly intervals up until then will provide the extra nitrogen they like and helps keep the soil moist — another must for mums. This is best accomplished by watering deeply only as often as necessary for an always moist soil.

With much sun and a little shade they are happiest. An east exposure—beside a wall—is the best location. But I have grown them in the garden with only a castor bean plant to shade them in the late afternoon, and they bloomed beautifully until I took too long a vacation and learned from experience that a hoped-for autumn harvest of beauty from chrysanthemums depends on how well you remember them during the summer.

LETTERS

Joshuas in Utah . . .

Tempiute, Nevada

Desert:

Question 12 of the March, '56, True or False Quiz (Native Joshua trees of the Southwest are found only in California, Nevada and Arizona) is marked "true," but it should be scored "false."

Having aided in the retracement of the Nevada-Utah border for the Bureau of Land Management, I can assure you that there are Joshua trees in Southern Utah as well as in California, Arizona and Nevada.

R. N. LEUTZINGER

RNL — You are right — there are many Joshuas in southern Utah. The Quiz Editor sends his apologies for so flagrant an error.—R.H.

• • •

Tiny Seeds of Faith . . .

Glendale, California

Desert:

The most stimulating observation to me in the March issue of *Desert* was the editorial paragraph on the ecology of desert plants. It is quite a penetrating refutation to the argument that man may destroy himself with his H-bombs.

That a million lives lie dormant in one seed in the desert sands is a reaffirmation of faith, if one be needed. That such a seed will refuse to germinate unless rainfall is at least half an inch or more attests the infinite order of the universe; and, that the reasons for this existed before becoming part of man's knowledgeable realm demonstrates conclusively that there is an intelligence above and beyond homo sapiens.

JOHN ERHARDT

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Western Stories Shrinking . . .

Elsinore, California

Desert:

In Harold O. Weight's "Jasper at Old Sodaville" (January, '56) he quotes Ogden Mills as saying the narrow gauge to Keeler was "built either 200 miles too long or 200 years too soon."

In W. A. Chalfant's *The Story of Inyo* (1922, 1933) the same quotation is used (page 314)—except he has Mills saying that the railroad was "built either 300 miles too long or 300 years too soon."

Are Western tales getting smaller instead of bigger?

K. E. GORDON

Snake Danger . . .

Chicago, Illinois

Desert:

We are planning a hike across the Grand Canyon from rim to rim. Would it be safe to sleep on the ground on only an air mattress? I am concerned over the rattlesnake and scorpion danger.

INEZ SWANSON

Dear Mrs. Swanson—The hike from one rim to the other at Grand Canyon is a grand adventure—but unless you are in prime condition do not try to hurry—and forget about the rattlesnakes. I have slept in the bottom of the canyon for weeks without ever seeing one — and I don't think the scorpions have ever heard of the place. In fiction there are lots of snakes on the desert—in fact, very few of them. Don't let them spoil your trip—for they are more afraid of you than you are of them. —R.H.

• • •

Remembers Ebbens . . .

San Bernardino, California

Desert:

Edmund Jaeger's story on Frying Pan Ebbens (March, '56) interested me greatly for in 1900 I saw this famous prospector in San Jacinto, California. He was leading four of his burros down the road and when he passed I could see that he was an extremely small man. At first I thought I was looking at a woman in men's clothing.

I wonder if the bones the sergeant found in the Borrego Badlands, as told in the story by John Marston (*Desert*, January, '56), were not those of Ebbens?

WM. N. NELSON

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Desert Correspondence . . .

Huntington Park, California

Desert:

Both my husband and I enjoy your magazine very much for it brings the desert to us when we are unable to go to it. I would like very much to correspond with some of your women readers who live on the desert. My address is Box 1213, State Street Station, Huntington Park, California.

MRS. PAUL SMITH

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More on Prospector . . .

Norwalk, California

Desert:

Your January cover photograph of the prospector leading his burro reeks of stage dressing and Hollywoodism. The burro is fine, but the prospector—Ugh!

THE TAYLORS

Cats Are Friends . . .

Santa Monica, California

Desert:

I once shared Gaston Burridge's views (*Desert*, March '56) regarding the feline family harboring "no real love for mankind" until a little gray fur-ball was left on my doorsteps by an old mama cat.

Each evening this kitten would await my return from work and then race the last block alongside my bicycle. He would not eat his meals until I placed him on my lap and stroked him.

As he emerged into an adult cat, I felt he was slipping away, or "reverting." Then one evening I suffered a painful accident. I put out his food but he would not touch it. Instead he jumped up on the sink board and watched me cleanse my wounds. That night I slept fitfully and every time I awoke I found him on the bed next to me.

I am sure I am not alone in my acquaintance with a cat that shows genuine affection toward man.

BILL UTTERBACK

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Hot Air Power . . .

Chula Vista, California

Desert:

Hard Rock Shorty has nothing on us.

While camping in Earthquake Valley several years ago, we had just erected our tent and were enjoying the peace and quiet of the desert when a friendly little breeze came up and started flapping our tent awning.

We payed no heed to it and continued to relax. Soon the little breeze began getting rough and occasionally flung a handful of sand in our faces.

This made us decide to take down the tent and move over to Box Canyon east of Mecca. The breeze was now so strong it hampered this operation and when we got in the car it was blowing a gale.

As we moved out of the valley, the breeze was throwing walnut-sized rocks at the car.

It was then that I decided to put this rascal to work. I turned off the ignition and slipped the car into neutral. Before the wind realized what it had done, it blew us all the way to Kane Springs.

This angered it greatly and all the way into Mecca it tried to blow us off the road. When we reached Box Canyon the wind gave up. We set up our tent and enjoyed the peace and quiet of another desert day.

REY and THELMA BARNHART

Below Normal February Rains Alter River Runoff Forecasts

The water supply outlook for the major streams of the Desert Southwest is generally not as favorable as it was a month ago, although the changes have been slight.

Precipitation during February over the Lower Colorado Basin ranged from near normal over the upper watersheds of the Gila, Salt and Little Colorado Rivers to much less than normal over the drainage basin of the Verde River. This did not alter the waterflow predictions for the Little Colorado River Basin, however, which is expected to be near half of the 1938-52 average. The water supply outlook for the upper Gila Basin remains critical with only 20 percent to 30 percent of average

runoff indicated even if precipitation for the rest of the season should be near normal. The November-June runoff of the Salt River near Roosevelt, Arizona, is forecast to be near 57 percent of average while only 41 percent of average streamflow is indicated for the Verde River above Horseshoe Dam, Arizona.

Forecasts for the main stream and tributaries of the Upper Colorado range from 105 percent to 122 percent of the 1938-52 average runoff. For the Gunnison Basin, near 110 percent of average runoff is predicted for the Taylor River; near 80 percent for the Uncompahgre Basin; and near 90 percent of average for the Gunnison River

near Grand Junction, Colorado. The outlook for the Dolores Basin is for runoff of 77 percent of average at the headwaters to near 60 percent of average in the lower reaches. The Colorado River at Cisco, Utah, is forecast to be 97 percent of the 1938-52 streamflow.

The current water supply outlook for the Green River in Wyoming and for the Little Snake, Yampa and White Rivers in Colorado is for above average streamflow. Forecasts vary from 110 percent to 124 percent of average. The water supply outlook for the Utah tributaries of the Green River was less promising as of March 1. Forecasts vary from slightly below average runoff for the Duchesne River to 74 percent of average for the Price River near Heiner, Utah. The Green River at Green River, Utah, is predicted to have 119 percent of average runoff.

Much below normal precipitation, averaging only 40 percent of normal, was reported for the San Juan River Basin during February. Prospects of water supply for the San Juan Basin vary from 88 percent at Rosa, New Mexico, to 75 percent at Farmington, New Mexico.

February rainfall over the Rio Grande Basin was about 60 percent of normal resulting in water-year runoff forecasts for the Rio Grande at Del Norte, Colorado, and for the tributaries draining the San Juan Mountains of about 90 percent of average. Only 65 percent of average runoff is in prospect for streams on the western slopes of the Sangre de Cristo range in New Mexico. Flow in the middle Rio Grande Valley is forecast to be about 65 percent of average while inflow into Elephant Butte Reservoir is predicted to be near 50 percent of average.

Precipitation during February averaged from below normal to much below normal over the Great Salt Lake Basin, causing forecasts for this region to be 5 percent to 15 percent lower than those issued last month.

Current prospect for streamflow in the Sevier Basin ranges from 55 percent to 65 percent of average, approximately the flows that occurred during the 1954 season. Near 82 percent of average runoff is forecast for the Beaver River near Beaver, Utah.

The water supply outlook for the Humboldt River Basin remains extremely good. Water-year forecasts for the upper Humboldt Basin range from 173 percent of average for the main stream at Palisade, Nevada, to 188 percent of average for the South Fork of the Humboldt River near Elko, Nevada. Near 143 percent of average runoff is expected for the Martin Creek near Paradise Valley, Nevada.

Hard Rock Shorty of Death Valley



"Nope, there ain't no homesteaders in Death Valley," Hard Rock Shorty was telling the Kansas farmer who, touring the West, had stopped at the Inferno store for gas and water. "Ain't enough rain here to grow good sage brush," Shorty added.

"But why don't you get more rain?" the Kansan asked.

"Trouble is, rain falls too slow here," Shorty explained. "Comes down so slow it all evaporates 'fore it gits to the ground. Only time we get any moisture is when one o' them strong winds blows the snow over here from the top of ol' Mount Whitney. But generally the wind changes the next day and blows it back, so it don't do us no good.

"If you're lookin' fer a farm, why don't you go down along the Mojave River near Barstow. Lot o' good land down there an' plenty o' water. Only trouble is them homesteaders down there is always feudin'.

"Lots o' wind down there too, an' that's what makes them homesteaders all mad at each other. Feudin' started 10, 15 years ago

when ol' Hank Hooley planted 10 acres o' potatoes. Two days later one of them Mojave twisters come along an' blowed them seed taters right outta the ground an' scattered them over Pete Palooka's new plowed field three miles down the valley. Soon's Hank found out about it he sez to Pete: 'S'long as I furnished the seed I guess we outta go 50-50 on that tater crop.'

"Pete sez: 'I guess them taters wuz planted by an act of Divine Providence, an' you ain't got no claim on them.'

"Of course that made Hank plenty mad.

"Taters grew fine an' it looked as if Pete'd make a lotta money out of 'em. Pete rented one o' them diggin' machines, but jest as he got them spuds all outta the ground that ol' Mojave blizzard came along blowin' the other way an' picked them up an' dumped them in Hank's corral. Hank sold the spuds and Pete's been growlin' about it ever since. Wind's allus doin' crazy things like that down there. It ain't no place fer a peace-lovin' farmer."

Here and There on the Desert . . .

ARIZONA

Marriage Law Accepted . . .

YUMA—Yuma County ministers accepted a proposed law which would require Arizona couples to take a blood test before being married. Out-of-state couples would not have to take the test. This bill is a substitute for a bill which originally proposed a 72-hour waiting period for all couples, from Arizona as well as out-of-state. The 72-hour wait law was opposed on the grounds that it would cost Yuma an estimated half-million dollars a year spent by California couples who come to Arizona to be married.—*Yuma Sun*

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Navajo Job Opportunity . . .

FLAGSTAFF—Construction of the big power dam on the Colorado River in Glen Canyon, first step in the Upper Basin project, is expected to result in large scale employment opportunities for Navajo workers, Rep. Stewart Udall of Arizona believes. "With many of the Navajo people living within a relatively short distance of the con-

struction site, they can look for excellent job opportunities," he said. Flagstaff has been mentioned as probable construction railhead for the project. The dam will also mean a large new supply of low-cost power for the state, particularly for Northern Arizona where the Navajo reservation is located. Navajo Dam, to be located on the upper San Juan in New Mexico, will provide farms for transplanting about 1400 Indian families, most of who now live in the Arizona portion of the reservation.—*Coconino Sun*

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Stadium Fund Bill Drafted . . .

TEMPE — Two Maricopa County legislators have drafted a bill appropriating \$2,000,000 for construction of a stadium in Papago Park to serve the state fair and Arizona State College at Tempe. The stadium would be part of a package plan calling for removal of the state fairground to the park area and sale of the present fair site for homes and a shopping center. Sponsors of the bill are Norman S. Lee and Ruth I. Hunt.—*Phoenix Gazette*

Vandalism Curbs Sought . . .

JEROME — Vandalism in Jerome has reached alarming proportions, according to R. E. Lawrence, president of the Jerome Historical Society. That organization recently offered a \$50 reward for information leading to the arrest and conviction of persons responsible for the destruction, defacement or theft of any of the society's signs or markers. Several shotgun blasts ruined a large sign containing over 800 carved letters. Lawrence estimated that 200 hours of labor went into the construction of this sign. — *Verde Independent*

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Apaches Plan Tours . . .

GLOBE—Conducted tours of the San Carlos Apache Indian Reservation northeast of Globe will be an added attraction for motorists who travel Highway 70, the Arizona Highway 70 Association announced. Jesse S. Stevens, chairman of the Apache Tribal Council, said his tribe is proud of the progress being made at the San Carlos Reservation and those who dwell there want the world to know about it. The proposed tours would give visitors a close-up of actual tribal enterprises, including the schools, the government offices and the work shops.—*Wickenburg Sun*



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BOOKS — MAGAZINES

NOW AVAILABLE—"Causes and Significance of the Modoc Indian War." Bound first release information on Modoc Indian War from files of War Department. Authentic fascinating story, by Cadet Hugh Wilson of West Point (1930-1951), available by mail, \$1 postpaid. Revenues for college scholarships. Order now, Hugh Wilson Scholarship, High School PTA, Tule Lake, California.

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HAVE REAL fun with desert gems, minerals and rocks. The rockhound's how-to-do-it magazine tells how. One year (12 issues) only \$3.00. Sample 25c. Gems and Minerals, Dept. J-10, Palmdale, Calif.

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WANTED—Back issues of Desert Magazine. Will pay \$5 for Nov. '37; \$1 for Apr. '38; \$1.50 for Sept. '38; \$1.00 for Feb. '39, in good condition. Desert Magazine, Palm Desert, California.

REAL ESTATE

FOR SALE—Rock Shop on Highway 90, 1½ miles west of Marfa, Texas, Presidio County. In Big Bend area. 3 acres of land. Good 5-room house, good well of water, electric pump. Butane gas system for utilities. Will sell with rock shop or without. Brian Cartwright, Box 456, Marfa, Texas.

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BEAUTIFUL, PARTLY level, 20 acres including famous Coral Reef Mt., many superb building spots. Full price \$6000. The All American Canal wanders lazily through an 80-acre farm surrounded with lovely desert mountains just 7 miles from Indio. It's for sale, \$26,500. Ronald L. Johnson, Thermal, California.

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SECTIONIZED COUNTY MAPS — San Bernardino \$1; Riverside \$1; Imperial 50c; San Diego 50c; Inyo 75c; other California counties \$1.25 each. Nevada counties \$1 each. Topographic maps of all mapped areas. Westwide Maps Co., 114 W. Third St., Los Angeles, California.

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CALIFORNIA

To Record Pioneer Music . . .

DEATH VALLEY — Songs of the desert, the famed 20-mule team days of Death Valley, the prospector and his burro and of early homesteaders are to be available in phonograph record form at an early date, Mrs. George Palmer Putnam, president of the Death Valley 49ers, announced. The songs, written and sung originally to guitar accompaniment by J. E. (Aim) Morhardt of Bishop, have been recorded. —*Inyo Register*

Tourist Detour Fought . . .

NEEDLES — Needles officials are opposing a Las Vegas, Nevada, proposal that Highway 66 be rerouted as either an alternate or north route through the gambling capital from Kingman, Arizona. Traffic would travel on Highways 93 and 466 across Hoover Dam into Las Vegas, then swing down into California to Barstow. Needles officials believe the rerouting would harm their tourist industry which ranks second behind the Santa Fe railway. —*Los Angeles Times*

Cork Tree Experiment . . .

HOLTVILLE — Amateur horticulturist John DePaoli believes cork trees will thrive in California's Imperial Valley. In 1940 DePaoli bought two small cork oaks and planted them in his front yard. Today the full grown corks are shedding acorns which DePaoli is planting in his experimental garden which also has 50 one-year old cork oak saplings which were transplanted from quart cans to large drums. DePaoli says a grown Cork Oak will remove as much as 500 gallons of water from the atmosphere in a single day. He believes that if the Imperial Valley could become a roothouse of such trees, dreaded summer humidity would be a minor concern. —*Holtville Tribune*

Predator Tally Released . . .

SACRAMENTO — During the past six years Department of Fish and Game trappers have taken a total of 41,578 predators. Coyotes top the list of individual species with 11,429 taken during this period. There were 24,314 lesser predators such as skunks, rats, weasels and others. The Department trappers killed 5339 bobcats, 287 bears and 209 mountain lions in this six year period. Emphasis has changed from deer areas to lowland nesting areas of upland game and water-fowl, the Department said. For example, the number of coyotes taken annually has decreased from 3265 in 1950 to 1220 in 1955. —*Inyo Register*

Boat Basin Planned . . .

SALTON SEA PARK — A \$70,000 development program will be undertaken this year at Salton Sea State Park. The State Division of Parks and Beaches has appropriated \$50,000 for a boat basin and \$20,000 for roads and parking at the park. The program is in addition to \$275,000 for acquisition of 10 miles of additional beach frontage contained in the governor's recent announcement of his program for state parks and beaches. The boat basin is designed to eliminate boating hazards to swimmers as well as provide launching and other facilities for small craft. —*Coachella Valley Sun*

Two Park Sites Added . . .

INDIO — Governor Goodwin Knight added two more sites in Riverside County to his priority list for state parks. Both of the new parks are in the desert end of the county, Quien Sabe point on the Colorado River, and Mecca Hills, southeast of Indio. The river park received 26th priority from the governor and Mecca Hills is No. 100 on the list of 119 recommended projects. —*Hemet News*

NEVADA

Comstock Dollars Proposed . . .

WASHINGTON, D. C. — Five hundred thousand silver dollars would be minted for nationwide circulation to commemorate the Nevada silver centenary in 1959 and the 100th anniversary of the Comstock Lode's discovery at Virginia City under a bill introduced by Senator Alan Bible of Nevada. There are now in general circulation 231,000,000 silver dollars, none minted after 1935. — *Nevada State Journal*

Gambling Limit Favored . . .

RENO — Mayor Len Harris of Reno declared the city council is considering new gambling restrictions "because we

do not want to make a honky-tonk out of our town." The council is studying a resolution which would announce a new policy of allowing no new gambling licenses north of the railroad tracks or in the heart of downtown Reno. One of the purposes of the proposed resolution is to discourage gambling applicants from planning operations in inadequate buildings. — *Nevada State Journal*

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Water Rights Decided . . .

RENO—District Court Judge Gordon Rice ruled in favor of John Laborde, a Lander County rancher and cattleman, in a complicated water rights case that may have far reaching significance in the livestock industry. Laborde, in seeking a restraining order against another Central Nevada cattleman to prevent him from using six springs in Lander County, contended that he had a vested water right recognized by the state. The other rancher maintained that he had a right to use the springs because of his grazing privileges under the Taylor Grazing Act. Judge Rice decided that the Taylor Grazing Act does not supersede water rights on the public domain that have been granted under state law.—*Nevada State Journal* . . .

Post Office May Close . . .

UNIONVILLE — The Unionville postoffice, two years older than the state itself, may close its doors on July 1, 1956, almost 94 years from

the day its first stamp was sold on April 15, 1862. But, before the Post Office Department issues the final closure order, Senator Alan Bible has asked Unionville's patrons, totaling nine families, "What are your feelings about this?" If protests are received, they will be turned over to the Post Office Department for consideration. Postal officials want to put in a Star route running from the Inlay railroad, giving Unionville patrons box service including stamp purchase facilities.—*Nevada State Journal*

Wheeler Survey Ordered . . .

ELY — A study of the Lehman Caves-Wheeler Peak area in eastern White Pine County as a possible national park site, has been ordered by the National Park Service and the United States Forest Service. The 28-square-mile area has outstanding qualifications as a scenic and outdoor recreation land, backers of the park contend.—*Ely Record*

Federal Holdings Enlarged . . .

CARSON CITY—Nevada land area owned by the Federal Government, highest percentage-wise in the nation, has increased during the last few years, Senator George W. Malone announced. "The critical aspect of such large Federal holdings," Malone stated, "is the non-taxability and loss of revenue of such lands by state or local authorities." Excluding trust properties, the National Government owns 87.1 percent of the land in Nevada. Second largest national holdings are 70.2 percent of Utah.—*Pioche Record*

NEW MEXICO

Pueblos Join Congress . . .

SANTO DOMINGO — The All Pueblo Council voted to join the National Congress of American Indians as a move toward unified tribal action. The councilmen also decided to adopt a constitution for the All Pueblo group and named a committee to begin drafting the document.—*New Mexican*

Fort Union to Open . . .

LAS VEGAS — Old Fort Union, once a key defense post of the Santa Fe Trail, will be opened to the public this summer as a national monument. The government, which relinquished control of the famous fort more than 50 years ago, is spending \$360,000 for its restoration as a tourist attraction. The state of New Mexico is putting in eight miles of access roads and paying a private firm \$20,000 for loss of the grazing pastures it has been using around the crumbling adobe walls. The fort is located 26 miles north of Las Vegas near the community of Watrous.

TRUE OR FALSE

According to the law of averages, you should get half of these right even if you know nothing about the Great American Desert. But most Desert readers will do much better than that. A score of 15 is very good—17 or 18 is excellent. Over 18 is exceptional. Anyway, there's no harm in trying, and your score will improve from month to month if you are a regular reader. The answers are on page 38.

- 1—The peccary or javelina runs wild in southern Arizona. True . . . False . . .
- 2—The blossom of the ocotillo is always red. True . . . False . . .
- 3—The states which meet at the famous "Four Corners" are Colorado, Texas, Arizona and Utah. True . . . False . . .
- 4—Stalactites protrude from the floor of a cave. True . . . False . . .
- 5—Elephant Butte dam is located on the Colorado River. True . . . False . . .
- 6—Only vegetable dyes made from native shrubs of the desert are used in coloring yarn for Navajo blankets. True . . . False . . .
- 7—The blossom of Rabbit Bush is yellow. True . . . False . . .
- 8—Lowell Observatory is located near Flagstaff, Arizona. True . . . False . . .
- 9—Lieut. Ives brought the first camel caravan across the American desert. True . . . False . . .
- 10—Natural Bridges National Monument is in Utah. True . . . False . . .
- 11—A line drawn north and south through Las Vegas, Nevada, would be west of Phoenix, Arizona. True . . . False . . .
- 12—Jerome, Arizona, was once a flourishing lead-producing camp. True . . . False . . .
- 13—Desert Indians often used calcite for making their arrowheads. True . . . False . . .
- 14—Shongopovi is the name of one of the Hopi towns. True . . . False . . .
- 15—Roosevelt Dam was named in honor of President Theodore Roosevelt. True . . . False . . .
- 16—Meteorites always contain nickle or iron. True . . . False . . .
- 17—Prescott was once the capital of Arizona. True . . . False . . .
- 18—Mexican Hat, Utah, is on a bluff above the San Juan River. True . . . False . . .
- 19—Sidewinders are seldom seen when the sun is up. True . . . False . . .
- 20—Juniper is a cone-bearing tree. True . . . False . . .

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Abiquiu Dam Work . . .

ALBUQUERQUE — Work on the long-awaited Abiquiu dam, a \$11,623,000 portion of the huge Chama River flood control project, is scheduled to begin this spring. Col. Robert P. Cron, district engineer of the Corps of Engineers at Albuquerque, announced that he plans to let the first contract on the construction job in April. Completion of the project is expected in July, 1959.—*New Mexican*

Indian Lawsuits Extended . . .

WASHINGTON, D. C.—American Indians were given five more years to sue the government for loss of their aboriginal rights to their land, lost to the white man. The action, by the Senate Interior Committee, is still subject to approval by the House and Senate.—*New Mexican*

Christ Statue Planned . . .

ALBUQUERQUE — A 350-foot, stainless steel statue of "The Christ of the Southwest," which would rotate once every 24 hours with its face following the sun, may be built here soon. Plans to construct a spiritual and cultural center "worthy of New Mexico's great Christian heritage," surrounding the statue, are progressing in Albuquerque. Cost of the project, depending upon the site and the final plans, has been roughly estimated at between \$500,000 and \$3,000,000.—*Phoenix Gazette*

Elk Die in Transit . . .

TAOS — Fred Patton, public relations director for the State Game Department, reported an "alarming number" of elk have died while being shipped to the state. State and private interests have been transplanting 460 Yellowstone Park elk to New Mexico this year. Patton said six of 40 elk consigned to Ralph M. Rounds of the Pot Creek Lumber Co. were dead on arrival. Rounds bought the elk for planting on the Little Rio Grande south of Taos. The department lost seven of 120 to be released in the Gila Wilderness.—*New Mexican*

UTAH

Polygamy Exaggerated . . .

SALT LAKE CITY—About 2000 Utah residents live in homes where polygamy is practiced, a survey conducted by the State Welfare Commis-

sion revealed. H. C. Shoemaker, commission chairman, pointed out that the figure does not include persons who might believe in fundamentalist doctrines, but only those in families where the doctrine is practiced. The largest concentration, the survey showed, is in Salt Lake County where approximately 1600 men, women and children live in polygamist families. The findings point to the fact that previous polygamy estimates were exaggerated.—*Salt Lake Tribune*

Hite Ferry Sold . . .

HITE—A. L. Chaffin has sold his Hite Ferry and ranch to Reed Maxfield and Clyde Konold of Bicknell, Utah. Additional accommodations are planned by the new owners who will continue to operate the ferry on a regular schedule, seven days a week. Maxfield and Konold will carry on the cabin rentals, gas and oil sales and car repair service. The Chaffins plan to reside in Teasdale.

Mormon Battalion Monument . . .

SALT LAKE CITY — An anticipated 1000 men, women and children will travel from Salt Lake City in July to help dedicate a Mormon Battalion monument at the Civic Center in Los Angeles. Mormon Battalion, Inc., a subsidiary of the National Society of Sons of Utah Pioneers, is arranging the travel program. The original battalion, composed of 506 men, 31 women, 32 children and six teenage servants, was sworn into the U. S. Army to help Gen. Kearny in the conquest of California. Tentative plans call for the Utah citizens to leave Salt Lake City by auto on July 1 for Las Vegas, Nevada. After a day there, the group will continue to Los Angeles, arriving July 3.—*Salt Lake Tribune*

Dinosaur Road Ordered . . .

JENSEN—Work on the two-mile section of unfinished road between Jensen and the Dinosaur National Monument is expected to commence the first of May, according to Commissioner Durt Dudley. With the completion of this project, a hard surfaced road from U. S. Highway 40 at Jensen to the Monument headquarters will be available for visitors.—*Vernal Express*

Townfolk Ready Trees . . .

KEARNS — Residents of Kearns will continue their "Green Up" campaign to make this community a garden spot in Utah by planting 18,000 trees this summer. Last fall several hundred new lawns were planted under direction of the Kearns Recreation Council which is sponsoring the tree planting campaign. A belt of 12,000 trees will be planted around the south and west sides of the city along with two select trees for every home.—*Salt Lake Tribune*



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MINES and MINING

Washington, D. C. . . .

The United States Bureau of Mines reports improved metallurgical techniques in the titanium metal industry in 1955 resulted in the manufacture of titanium sponge of higher quality, record high production, and reduction in the price of titanium sponge metal and titanium mill products. Government assistance for the creation of additional titanium sponge capacity was suspended in 1955 as the supply of titanium sponge exceeded demand during the year. Industrial demand for other titanium products continued to increase in 1955 as high records were also established in the production and shipments of ilmenite concentrates and titanium pigments.—*Humboldt Star*

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Window Rock, Arizona . . .

Chairman Paul Jones clarified the Navajo Tribal Council's position regarding the leasing of tribal lands to the Delhi-Taylor Oil Corporation. The area embraced by the preliminary negotiations covers approximately one-third of the reservation south and west of the Four Corners area principally in Arizona. Jones emphasized that the Delhi-Taylor contract will not embrace the entire reservation and that it will not result in a "freeze out" of present oil and gas operators. The tribe will reserve areas offsetting producing properties and larger amounts of other acreage for future oil and gas leasing under the competitive bidding system, Jones concluded.—*Salt Lake Tribune*

Las Vegas, Nevada . . .

The Johns-Manville Company was said to be negotiating for property between Las Vegas and Henderson with the idea of entering that area in the gypsum business. In an effort to determine the extent of the Nevada deposit, an exploratory company will soon begin diamond drilling, trenching and other exploratory work on the property. It is expected that this preliminary work will be completed within a year. — *Nevada State Journal*

New York City, New York . . .

Copper climbed to its highest price in more than 80 years in mid-February. Anaconda Sales Co. broke the price pattern which has prevailed among major producers since last summer by boosting copper three cents a pound to 46 cents. The increase was not immediately followed by any other company. The hike came at a time when copper trade authorities were already expressing fears that the 43 cent price of major producers was causing consumers to seek substitutes, such as aluminum and plastics.—*Salt Lake Tribune*

Yerington, Nevada . . .

The Coast Mining and Development Co., mine development contractors of Oakland, California, plan establishment of a pilot mill and testing laboratory at Yerington. The development company plans the establishment of a recovery mill in Gabbs Valley as soon as the weather will permit. Native quicksilver, gold and platinum are the principal values represented on the 2560-acre tract. Several other gold, uranium and copper properties are now under investigation by the firm in Mineral and Lyon counties.—*Nevada State Journal*

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Salt Lake City, Utah . . .

Directors of White Canyon Mining Co. of Salt Lake City announced sale of the firm's Arizona manganese properties to a California religious institution in a transaction which will net the firm \$575,000. The company also reported that it plans to drill one new wildcat on its 30,000-acre oil and gas leasehold in San Juan County, Utah. Two of the company's wells are ready to deliver natural gas to Pacific Northwest Pipeline Corporation's transmission line when that facility is completed by mid-summer, 1956.—*Salt Lake Tribune*

Carson City, Nevada . . .

Less than 500,000 short-ton units of tungsten remain to be purchased under the government's domestic buying program before the 3,000,000 unit limitation is reached, Senator Alan Bible of Nevada reported. Nevada is the nation's biggest tungsten producer.—*Nevada State Journal*

Washington, D. C. . . .

The court of claims ruled recently the government is liable for damages as a result of the war-time closing of the country's gold mines. The court referred to a commissioner the determination of amounts of damages due Homestake Mining Co., Idaho Maryland Mines Corp., Central Eureka Mining Co., Alaska-Pacific Consolidated Mines Co., Bald Mountain Mining Co. and Ermont Mines, Inc. The court found that an order issued by the War Production Board October 8, 1942, amounted to a temporary taking of property by the government for which just compensation must be paid under the fifth amendment to the Constitution. This order was designed to conserve critical mining equipment and divert manpower from the gold mines to the mining of copper and other war essential materials.—*Salt Lake Tribune*

Carson City, Nevada . . .

Nevada's silver production rose markedly and its gold production declined slightly during the past year, according to preliminary annual figures of the Bureau of Mines. The state's output of silver in 1955, 826,788 fine ounces, was 48 percent greater than in 1954. Although gold production was 78,883 fine ounces, this marked a slight drop from 1954.—*Nevada State Journal*

Anneeth, Utah . . .

Discovery of oil at Anneeth in southeastern San Juan County, Utah, has set off a drilling boom in Utah's section of the big Paradox Basin. Two new well locations were announced for the Texas Co. However, the firm itself said at Salt Lake it had no immediate knowledge of the drilling plans of the Farmington, New Mexico, district, which operation brought in the 1290-barrel-a-day wildcat at Anneeth. Shell Oil Company's division offices also announced a new wildcat at nearby Recapture Creek. Superior Oil Company of California has reportedly staked three locations on its leases in the Anneeth area.—*Salt Lake Tribune*



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BOOM DAYS IN URANIUM

Experts See Stability Ahead In Nation's Uranium Industry

The *New York Times*, in an exhaustive financial page survey of the uranium situation, said recently that uranium is leaving the penny stock era, that the speculative frenzy is about over and Wall Street is now ready to "talk business." The *Times* said discoveries have shown a big source of the ore exists and it added that a big demand for uranium far into the future is considered assured.

The *Wall Street Journal* commented on President Eisenhower's proposal to release 88,000 pounds of uranium worth one billion dollars for industrial use in this country and abroad. That business publication expressed belief that nuclear companies are

looking to the foreign field for profitable sales until nuclear power becomes widely competitive in the United States.

Some uranium operators believe uranium some day may reach a stage second only to the oil and gas industry in the economy of an uranium-rich state such as New Mexico.

Indicative of the increasing interest of the larger financial houses and mining operators in the future of uranium is the list of some of the concerns now interested in New Mexico uranium companies. They include the Atlas Corps, Anaconda Co., Haystack Development, a wholly owned subsidiary of Santa Fe Railway, J. H. Whitney Co., White-Weld Co., the San Jacinto Oil Co., Kerr-McGee, Tidewater Oil and American Metals.—*New Mexican*

United States Releases Billion in Uranium

The United States has released a billion dollars worth of uranium for peaceful uses at home and abroad. President Eisenhower announced that 40,000 kilograms (more than 40 tons) of uranium-235 will be distributed for atomic reactors and research. The uranium will be made available in a form not easily convertible to military use. Half of the 40,000 kilograms will be set aside for leasing in the United States and the rest will be leased or sold abroad. The President said prudent safeguards will be taken to make sure the uranium is used for peaceful purposes.

The uranium will be made available to all nations except Russia and its satellites and nations like Great Britain that are already producing it.

The action came three weeks after a civilian advisory committee, headed by Robert McKinney of Santa Fe, urgently recommended that the AEC free materials for private development of peaceful atomic projects.



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Ore Samples Identified Free at Government Lab

The United States has recently established a mineral identification laboratory at the Bureau of Mines' Denver, Colorado, Federal Center. There the government is equipped to answer questions concerning new minerals at no cost to the amateur or professional prospector.

Chemical tests and a sensitive scaler are used to identify minerals sent to the laboratory, but no attempts are made to assay the minerals.

Similar labs in Salt Lake City, Tucson and Rapid City identified 10,528 mineral samples last fiscal year. The Denver laboratory will accept samples from the bureau's Rocky Mountain region, including Colorado, Wyoming, Utah, Arizona, New Mexico, Nebraska, North Dakota and South Dakota. To obtain fast identification of samples, the bureau advises sending them to the nearest identification laboratory. Mineral samples should weigh at least one pound and should be carefully wrapped in a strong container with return address on the package. The exact location where the sample was picked up should be stated and the parcel mailed to: Superintendent, Denver Experiment Station, U. S. Bureau of Mines, Bldg. 20, Denver Federal Center, Denver, Colorado.—*Ploche Record*

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"Uranium Color Photo Tone"	1.00
"Uranium Prospectors Hand Book"	1.00
"The Uranium and Fluorescent Minerals" by H. C. Dake	2.00
"Popular Prospecting" by H. C. Dake	2.00
"Uranium, Where It Is and How to Find It" by Proctor and Hyatt	2.50
"Minerals for Atomic Energy" by Nisonger	7.50
"Let's Go Prospecting" by Edward Arthur	3.50

MAPS

Map and Geology (Uranium and Mineral Districts of California)	1.50
Map of Kern County (New Section and Township)	1.50
Map Uranium and Minerals (The Nine Southwest States)	1.00
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Government Spends Millions To Grubstake Prospectors

A report by the Federal Defense Minerals Exploration Administration shows the government has executed contracts in recent years for participation in a prospecting program estimated to cost \$40,058,862.

The government and prospectors are jointly financing the hunt for defense minerals under contracts calling for federal participation of \$24,589,540 and contribu-

tion of \$15,469,122 by prospectors. The government actually has spent about \$15,000,000 so far.

DMEA has approved 360 of about 3000 prospecting contracts proposed by miners. Some federal money will be returned to the treasury through royalties from production, and DMEA estimates that nearly \$50,000,000 worth of potential new resources will result from each million invested by the government.—*Phoenix Gazette*

New Utah Mill Has No Penalty on High Lime

A processing mill, said to be the first to be constructed in the United States with no penalty on high lime ore, is being completed at Mineral Canyon, Utah, by Universal Uranium and Milling Corporation. Earl Smith, Moab assayer, is credited with developing a process for extracting uranium from high lime ores without a penalty to the producer. The mill is also said to be the first to be constructed at site of the ore deposit.

Universal Uranium and Milling Corp. has 915 potential uranium claims in Mineral Canyon, and uranium and rare earth properties in Northern Arizona.—*Pioche Record*

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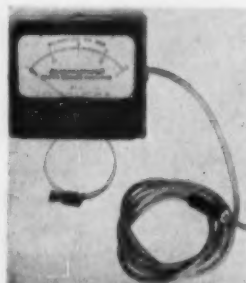
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TRUE OR FALSE ANSWERS

Questions are on page 34

- 1—True.
- 2—False. There are white ocotillo blossoms, although very rare.
- 3—False. The four states are Colorado, Utah, Arizona and New Mexico.
- 4—False. Stalactites hang from the walls and ceiling, stalagmites protrude from the floor.
- 5—False. Elephant Butte dam is in the Rio Grande.
- 6—False. Most of the Indians now use "trading post" dye.
- 7—True. 8—True.
- 9—False. Lieut. Beale led the first camel train westward.
- 10—True. 11—True.
- 12—False. Jerome's production was mostly copper.
- 13—False. Calcite is too soft to make good arrow points.
- 14—True. 15—True.
- 16—False. Stony meteorites seldom have metallic content.
- 17—True. 18—True. 19—True.
- 20—False. The seeds of the Juniper occur in berry-like capsules.

\$12,000 Bonus Offered for Pueblo Prospecting Permit

Light bidding prevailed at the United Pueblos sale of uranium prospecting permits on Indian tribal lands. The top bid was \$12,000 bonus on Jemez Pueblo land. At the last sale, held in 1954, a bonus of \$101,000 was paid for prospecting rights on the Acoma reservation.

N. B. Hunt of Dallas, Texas, bid \$12,000 for a permit on 21,270 acres of Jemez land. The land involved is all in Sandoval County, New Mexico.—*Grants Beacon*

• • •

The AEC may conduct an investigation into the death of cattle, birds and predators on the east slope of Hart Mountain Antelope Refuge during a snow storm last May. In the course of only a few hours a great many animals were killed. The snowstorm was centered over the Warner Valley and Hart Mountain with the resulting storm damage on the east slope confined to a small area. The theory that atomic radiation fallout was responsible for the deaths has been advanced locally.—*Alamogordo Daily News*

• • •

Vanura Uranium, Inc., disclosed a 10-ton ore shipment has been made from its Crown Prince mine on Martin Mesa, Montrose County, Colorado. This ore assayed 1.24 percent uranium oxide. The assay sheet on the load also showed 3.66 percent vanadium content. Ore of that grade will bring about \$141 per ton. The Crown Prince and nine other claims on Martin Mesa are leased by Vanura from Lakeside Monarch Mining Co.—*Dove Creek Press*

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DATES FOR INTERNATIONAL SKETCHING TOUR ANNOUNCED

The Cloudcroft, New Mexico, Art Colony has announced dates for its annual International Sketching Tour, a 13-day sketching trip through New Mexico, Texas and Mexico. This year's tour will begin on June 25 and end July 7. The \$199 fee includes hotel accommodations, meals, transportation and art instruction. The tour itinerary includes Carlsbad Caverns, White Sands National Monument, Fort Davis, mountain country, Big Bend National Park, El Paso, Juarez and Chihuahua.

For information on the sketching tour as well as other Cloudcroft activities, write La Vora Norman, director, Cloudcroft Art Colony, Cloudcroft, New Mexico.

NON-SLIP CLEATS FOR WADING IN WATER COURSES

CMG Industries, Box 611-DM, Laramie, Wyoming, has developed a safety device called "Leech-Kleet" which strap on waders and boots for wading on mossy rocks, slime and fast water. Sure-footedness is guaranteed with the Leech-Kleets and anyone who slips on a wet rock while using them will get their money back, the manufacturer states. The light, flexible Leech Kleets were invented by Leland Nelson, and sell for \$7.95 a pair.

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GEMS and MINERALS

50,000 ACTIVE ROCKHOUNDS, MINE BUREAU ESTIMATES

The Bureau of Mines reported that an estimated 50,000 men, women and children picked up gem stones in the United States last year with an estimated value of more than \$500,000.

The bureau said it encourages the rock hunting, which it figures is the foundation of a hobby that is resulting in a rapid increase in amateur gem stone cutting.

The weekend treasure hunts sooner or later may lead to a find of an important strategic mineral, such as manganese or nickel, the bureau added.

"With thousands of people out looking, the chances of uncovering a significant de-

posit certainly are increased," said one bureau engineer. The bureau spokesman recalled that a few years ago a rockhound found a massive jade boulder in California which, after cutting, was estimated to be worth about \$25,000. — *Barstow Printer-Review*

BAROQUE CAPS ELIMINATED BY DRILLING IN SCREW EYES

Weary of cementing mounting caps on baroque gems and of the opinion that a large cap detracts from the beauty of such gems, E. J. Mueller of the El Paso, Texas, Mineral and Gem Society, has been drilling polished apache tears, amethyst and agate baroques and, using a method which he has devised, inserts tiny screw eyes in the holes thus made.

Using a shallow metal tray with the edges turned up about one-quarter to three-eighths of an inch (depending on the size of the baroques) a heavy mixture of water and molding plaster is poured into the tray and leveled to the sides. In this plaster mix immediately after pouring are placed at least 10 of the gems to be drilled, in the exact position where the screw eye is to be placed. These gems are pushed down into the soft plaster about half their lengths and the plaster is allowed to harden.

In the drilling process, using any small drill press, a diamond drill of the proper size is placed in the chuck, a small dam of putty is formed on top of the baroque and a mixture of turpentine, light oil and 220 grit silicon carbide is placed therein, and the drilling is started. Light pressure and frequent lifting of the drilling is recommended. The drill speed should be between 1750 to 2000 rpm. Rather than damage the diamond drill, the silicon carbide grains seem to speed up the process and keep the bort of the drill clean and able to penetrate the stone more quickly.

To set the screw eyes in the gems, Mueller dips two tiny slivers of wood in glyptal cement and inserts them in the holes. After placing some of the same cement on the screw eye he turns it into place until tight. — *El Paso, Texas, Rockhounds' The Voice*

GRINDING WHEELS SOFTEN WHEN ALLOWED TO SOAK

Although there are few known cases of grinding wheels breaking when first turned on, it is always safe to let the wheel run a full minute before stepping in front of it. Allowing wheels to stand in water or failing to let a wheel spin itself dry after a job is completed softens the wheel and causes it to break or wear.

Grinding rough, jagged stones on the center of the wheel will cause it to warp. As the wheel diameter is decreased through usage, adjustments in motor speeds must be made or the wheel will wear out faster than it normally would. — *Santa Clara Valley, California, Gem and Mineral Society's Breccia*

NATURE PRODUCES FEW FLAW-FREE EMERALDS

Very few emerald crystals are found which are free enough of flaws to be suitable for gem stone cutting. Often the crystals when mined are coated with talc, but the hexagonal prism faces are apparent.

The opacity of emerald crystals may be traced to microscopical inclusions of dolomite, talc, rutile, liquids and gasses, the latter giving the appearance of "air bubbles." These inclusions point to talc-schist as the probable emerald matrix and the gem is deposited by pneumatolitic action, according to Victor Leinz. — *The Mineralogist*

ROCKHOUND FINDS DIAMOND VALUED AT \$15,000

A Texas tourist found a 15½ carat diamond recently at the Crater of Diamonds near Murfreesboro, Arkansas, the only diamond mine in North America. The estimated value of the stone is \$15,000. According to the rules of the mine, Mrs. A. L. Parker of Dallas will be permitted to keep all but 25 percent of the appraised valuation of the diamond. Tourists are permitted to roam the mine, which is not being worked, to search for surface diamonds. They can keep any they find that are five carats or less. Larger diamonds must be shared with the management. The stone found by Mrs. Parker is one and five-eighths inches long, about five-eighths inch wide and about one-quarter of an inch thick. Mrs. Parker paid \$1.50 for the right to hunt diamonds. — *Salt Lake Tribune*

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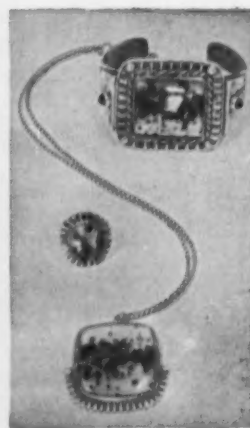
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SOONER EDITOR EXPERIMENTS WITH GEM PYROELECTRICS

Oklahoma City, Oklahoma

Desert:

On page 40 of the January, 1956, issue of *Desert Magazine*, you described a method for distinguishing between quartz and topaz, as quoted from *The Lap Bulletin* of the San Jose, California, Lapidary Society. This article says that topaz will, when rubbed, pick up small bits of paper and in fact that quartz will not do so.

This news made me wonder whether I was learning something and caused me to scurry for a handful of assorted crystals. I found that no amount of rubbing with my hand seemed to have any effect on a topaz crystal. I knew that what the author referred to was the phenomena known as a pyroelectric charge, that is, the development upon the crystal of enough static electricity to enable it to pick up small bits of paper, lint, straws, cigarette ashes, etc. Any text book on physics will reveal that there are a great variety of substances which, when rubbed together, will produce this effect. So I dug out an old army wool shirt and a silk handkerchief and proceeded to experiment.

I followed a uniform procedure, vigor-

ously rubbing each specimen for 50 seconds on either the wool or silk, or both. When the specimen, after being rubbed, picked up the bits of paper, ashes and lint offered, I termed it positive. Here are the results of my experimentation:

The following stones showed positive—Clear Topaz, Nigeria; Blue Topaz, Mason County, Texas; "Peach" color Topaz, Utah; Clear Quartz, Arkansas; Smoky Quartz, Oklahoma; "Herkimer Diamond" Quartz, New York; Smoky Quartz xl, Colorado; Smoky Quartz xl, Utah; Smoky Quartz xl, Switzerland; Citrine Quartz, Brazil; Glass stirring rod; Celestite xl, Texas; Tourmaline xl, Brazil; Apatite xl, Mexico; Precious Opal, Australia; Selenite xl, Oklahoma; Calcite, Iceland Spar; Fluorite, Illinois; Synthetic Corundum; Sealing Wax.

These two stones had negative results—Montana Moss Agate; Spodumene, California.

On page 62 of *Popular Gemology*, Richard Pearl says: "The ability of amber after being rubbed to attract light fragments of material was noticed as early as 600 B.C. Other gems also develop enough static electricity by friction to catch small bits of paper. Diamond, tourmaline and topaz

show well this interesting property. Most gems must be polished in order to exhibit positive frictional electricity; diamond is practically the only exception and is positive whether rough or cut."

I might add that it is well known among jewelers that tourmaline is so strongly pyroelectric that when the cut stones are displayed in a window or display case near enough to an electric bulb to be warmed by it, they attract an amazing amount of dust, becoming completely coated if left for any length of time. This has caused many jewelers to refer to tourmaline as the dirty stone.

DOMER L. HOWARD, Editor
The Sooner Rockologist

HOME STUDY COURSE OFFERED TO ROCKHOUNDS

Rockhounds interested in a home course on mineralogy should write to the Mineral Science Institute, 159 East Ontario Street, Chicago 14, Illinois, for its booklet describing the course.

The 16 lessons in the course include Nature's building blocks, the elements; Nature's building blocks, compounds; Nature of the earth crust; General properties of minerals and rocks; Broad classification of minerals; Important minerals and rocks; Identification of common and typical minerals; Identification of common and typical rocks; The non-metallic minerals; The metallic minerals; Random prospecting; Special prospecting; Uranium and Radioactive metals; Procurement, mining and recovery; Production, metallurgy and marketing; Legal aspects of prospecting and mining.

• • •

The discovery of an aquamarine weighing 134½ pounds was reported in the mining town of Valladares, Brazil. It is described as the world's largest aquamarine stone and was estimated to be valued at \$400,000. A stampede of rock hunters to the area is reported.—Seattle, Washington, Gem Collectors' Club's *Nuts and Nodules*

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FOR SALE: Beautiful purple petrified wood with uranium, pyrolusite, manganite. Nice sample \$1.00. Postage. Maggie Baker, Kingman, Arizona.

HAVE REAL FUN with desert gems, minerals and rocks. The rockhound's how-to-do-it magazine tells how. One year (12 issues) only \$3.00. Sample 25c. Gems and Minerals, Dept. J10, Palmdale, California.

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NOTICE—Send for an assorted approval selection of beautiful agate, etc. Robert E. Frazee, Box 316 Valley Center, Kans.

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TUMBLING AGATE, Montana, Old Mexico, jasper, wood, mixed \$4 lb. Slab material of all kinds. Satisfaction guaranteed. Sherman McCarten, 328 W. 9th Place N., Mesa, Arizona.

SAVE BATTERY costs! Run mineral light from your car cigar lighter socket. Only \$12.50 postpaid. Also operates your electric shaver. Glowspare Company, Box 8721, Los Angeles 8, California.

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15 CLASSIFIED TEXAS fossils, \$2; 50 classified Texas fossils, \$7.50; 5 Enchinoidea, \$2; Fossil sharks teeth, 25c each. Everything in fossils. Write your wants. 20 classified Texas minerals, some crystal forms, \$2.50; 14 minerals all crystal forms, \$7.50. Leather mounted longhorns. Write or visit, Pioneer Museum, Burnet, Texas.

GEMS OF THE desert, tumbled polished baroques, Mexican lace and carnelian agate, Death Valley jasper agate, rose quartz, petrified wood palm, black fig, many others. General mixture, \$6 pound. Mexican agate slices and various cuff link preforms. Slabs and findings. Earring size tumbled turquoise \$8 pound, larger size \$1 ounce. Price list. Golden West Gem Co., 7355 Lankershim Blvd., North Hollywood, California.

FOR SALE—Rock Shop on Million Dollar Highway two miles north of Durango. Living quarters, hundred foot parking. W. H. Crocker, 1403 Third, Durango, Colorado.

California Federation Past President Dorothy Craig recently installed the following new officers of the Whittier, California, Gem and Mineral Society: Donna Patrick, president; Sol Stern, first vice president; Harold Jackson, second vice president; Lois Stone, secretary; Gertrude Bowcutt, treasurer; Gene Golson, Homer Wright and Ken Tharp, directors.

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Show Notes...

NORTHERN CALIFORNIA CLUBS ANNOUNCE MAY SHOW DATES

Four Northern California societies are planning shows for May. The Gem and Mineral Society of San Mateo County will hold its show on May 12-13 at the County Fair Grounds, 25th and Pacific Blvd., San Mateo. The same dates have been chosen by the Benicia Rock and Gem Club for its fourth annual show. It will take place at Veteran's Memorial Building, 1130 First Street, Benicia. The show will be non-competitive and without dealer exhibits.

On May 20, the Mother Lode Society is planning its Annual Swap Day at the American Legion Park in Modesto. On the 26th and 27th the East Bay Mineral Society will hold its show at the Foothill Masonic Temple, 6670 Foothill Blvd., Oakland.

The California Federation of Mineralogical Societies' 17th Annual Convention and Show is slated for June 22-24 at the National Guard Armory, Fresno Fairgrounds, Fresno, California.

The Tourmaline Gem and Mineral Society of La Mesa, California, is planning a gem and mineral show for May 5 and 6 at the Grossmont High School. Recently elected officers of the club are John Bogan, president; Mrs. Stanley Jones, vice president; Mrs. Benjamin Benton, secretary; and Mrs. Cecil Manly, treasurer.

The Los Angeles, California, Lapidary Society will hold its annual exhibition of members' work at the Van Ness Playground Auditorium, 5720 2nd Ave., on May 5 and 6. The show will be open from 10 a.m. to 10 p.m. on the 5th and from 10 a.m. to 6 p.m. on the 6th. Admission is free.

GLENDALE TO COMBINE ANNIVERSARY WITH SHOW

The Glendale, California, Lapidary and Gem Society will combine its 10th Anniversary celebration with its annual show on May 19-20. Among outstanding exhibits will be the three famous carved sapphires from the Kazanjian Brothers' collection as well as large pieces of uncut opal and ruby; and I. L. Chow and William Phillips will show part of their collection of figurines and urns cut from common gem material.

The admission-free show will be held in the Glendale Civic Auditorium, 1401 Verdugo Road.

The Gem County Rock and Mineral Society of Emmett, Idaho, has invited all rock-hounds and lapidary club members to attend and display at its second annual rock and mineral show, June 22-24. There will be no admission charge for the show.

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Plans are being made for the Paradise, California, Gem and Mineral Club's annual Gem and Mineral Show, scheduled for June 30 and July 1.

Members of the Prineville, Oregon, Mineral Society announced July 7-8 dates for their annual show. Dale Hammersley of Ochoco Highway, Prineville, is general chairman of the event.

September 15-16 are the dates for the Antioch, California, Lapidary Club Hobby Show. It will take place in the main building of the Antioch Fair.

The outstanding jade collections of the Walker Art Center and the Minneapolis Institute of Arts will be shown at the National Gem and Mineral Show of the American Federation of Mineralogical Societies at the Home Activities Building, Minnesota State Fair Grounds, St. Paul, Minnesota. The show will be held July 12 to 15. Another outstanding feature of the show will be the gem mosaic completed by Joe Phetteplace. The mosaic is a picture of a race horse of about 1000 pieces of gem material including jade, malachite, tiger eye and datolite.

On or about July 1st, 1956, we will publish our 25th SILVER ANNIVERSARY EDITION of GRIEGER'S ENCYCLOPEDIA AND SUPERCATALOG OF THE LAPIDARY AND JEWELRY ARTS

YES, WE HAVE GIVEN THE ORDER TO OUR PRINTERS FOR THE PAPER TO PRINT THIS HUGE VOLUME. Do you know that **IT WILL TAKE 5 TONS OF PAPER** to print the 10,000 copies required and that this is equal to **MORE THAN A CARLOAD.** This will be a **BOOK OF OVER 180 PAGES** (8 1/2" x 11") and will contain **THE MOST PRACTICAL INFORMATION** for the **JEWELRY CRAFTSMAN** and **GEM CUTTER** that has **EVER BEEN PUBLISHED.** **NEVER BEFORE** has anyone attempted such a project **FOR YOU.** **RESERVE YOUR COPY NOW.**

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for 1948 or 1950 at 5 or ten times the original cost of \$1.00. Most of the people who still have these books will not sell them at any price.

Here are some actual letters we received from customers who purchased our 1948 Encyclopedia.

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T. Wilson—Coalinga, California

"I do not see how you expect to sell books when you put so much technical information in your catalogs on how to pursue one's hobbies."

C. W. Stimson—Seattle, Wash.

ILLUSTRATIONS IN COLOR

Many of the pages will be in color. There will be many wonderful articles which have never been in print before. Typical of such articles will be one by the director of research for Linde Air Products Co. on how **SYNTHETIC STAR RUBIES** are manufactured.

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EASTERN FEDERATION SHOW, CONVENTION SEPTEMBER 27-30

The 1956 Gem and Mineral Show and Sixth Annual convention of the Eastern Federation of Mineralogical and Lapidary Societies will be held in Baltimore, Maryland, on September 27, 28 and 29, with post-convention field trips scheduled for Sunday, September 30. The Gem Cutters Guild of Baltimore is the host Society.

Mrs. Elsie Kane White, 3418 Flannery Lane, Baltimore 7, Md., Executive Vice President of the Eastern Federation, is General Chairman. The show will be held in the main ballroom of Baltimore's Hotel Emerson and a full program of lectures on

the earth sciences is being planned. There will be commercial booths, competitive club and individual member displays, and non-competitive feature exhibits.

Dates for the Long Beach, California, Mineral and Gem Society's annual show have been set for October 6-7.—*Mineral News*

The Humboldt Gem and Mineral Society of Eureka, California, will hold its third annual Gem and Mineral Show on October 6-7 at the Carson Memorial Building in Eureka. Mrs. Amelia Alward, the club's federation director, was named chairman of the event.

New officers of the Riverside County, California, Chamber of Mines are Harry W. Hails, president; M. F. Wadleigh, first vice president; Velma Congleton, second vice president; Helen Bixel, secretary; O. H. Routenberg, treasurer; H. L. Tomer, Sally Gurley, Maurice O. Nordstrom, M. L. Moberly, F. A. Verdugo and Retta Ewers, directors.

Ned Hutter was recently installed president of the Palos Verdes Gem and Mineral Society of Torrance, California. Also taking office were Harold Hodson and Ernest Pauls, vice presidents; L. G. Hill, treasurer; Helen Massey, secretary; and Larry Coker, publicity chairman.

Don Ellis was recently re-elected president of the Seattle, Washington, Gem Collectors' Club along with vice president Merritt Morey. New officers are Mrs. Lena Streams, secretary; Norman Harvey, treasurer; and Roy Anderson, director.—*Nuts and Nodules*

STIFLE MEMORIAL CLAIMS' OWNERS STATE NEW POLICY

Members of the El Dorado County Mineral and Gem Society of Placerville, California, announced changes in the policy of the society with regard to collecting at the club's Stifle Memorial Claims.

Hereafter no collecting will be permitted at the Stifle Claims without written permission from the Club Secretary whose address is P. O. Box 950, Placerville. Applications should state date desired for collecting and the following fees should be included: \$5 for a mineral society group or, in the case of individuals, \$1 per car. No permits will be issued unless the fee accompanies the request. The fees entitle collectors to a maximum of 25 pounds of material per person.

Following their highly successful rock show recently, members of the unique rockhound club in the Parker Dam, California, area, agreed to make the show an annual event. Most of the club membership is made up of out-of-state trailerers who spend the Winter at the Big Bend Resort and other places along the Colorado River. It is the club's plan to hold the shows each February.

Will Wright was elected president of the Verdugo Hills, California, Gem and Mineral Society. Serving with Wright will be Darrell Albright, vice president; John Phillips, treasurer; Mary Koltz, secretary; Ray Mandeville, Marie Garrett, Barry Livingston, Earl Hittson, Joe Barnes, Walt Biggs, Dave Glazer, Don Eliot and Jerry Brown, trustees.—*Rockhound News and Views*

Not all Indian arrowheads were made from stone. A great number were made of other materials such as wood, bone, deer antler, metal and gar-fish scales. In New Mexico some tribes made arrows from cane or reed, the point a small piece of fire-hardened wood, sharpened to a point and socketed into the tubular arrowshaft. In Pre-Columbian times, some arrowheads were hammered out of native copper ore.—*Earth Science News*

Newest sensation in synthetic gemstones, strontium titanate, will be sold under the trade name Starillian at about \$75 per carat. With a refractive index higher than diamond but lower than titania, Starillian is nevertheless a clearer and more attractive stone than titania, it is reported. Starillian's hardness is 6 and specific gravity, 5.13.—*Sooner Rockologist*

The Wasatch Gem Society of Salt Lake City, Utah, has named the following members to office: Donald Jordan, president; Marie Crane, vice-president; Faye Burnside, secretary; Ken Stewart, treasurer; Dr. B. D. Bennion, field trip chairman.

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BOX 29, DEPT. D

ROCKS AND MINERALS

PEEKSKILL, NEW YORK

AMATEUR GEM CUTTER

By DR. H. C. DAKE, Editor of The Mineralogist

"What type of lapidary equipment do you advise?" This is a frequent question we have been asked by those who contemplate taking up lapidary work as a hobby.

The obvious answer to this question would be "What are your requirements?" Attention is called to the fact that it is possible to do equally good work with a small and modestly priced unit, as it is with units in the much higher priced field. We generally refer to the higher priced units as being in the commercial type class, and suitable for mass production.

In short, the home gem cutter with a quite modestly priced lapidary unit will work say two or three hours, and perhaps finish only two or three cabochons or polished pieces. Putting in the same time on the higher priced "commercial" type units, the same operator will finish from 10 to 20 times as many cabochons or polished pieces. But it is to be remembered that in both instances the work turned out can be equally good in quality.

The difference in production rests in the fact that in the commercial type units, two operations may be carried out at the same time. While a specimen is in the saw, the operator can be working at sanding, grinding or polishing. In the lower priced type of equipment, it is generally necessary to change tools for each operation, and this takes added time.

So in deciding what type of equipment to purchase at the outset, it may be well to keep these facts in mind. Or better yet, visit a number of home lapidary shops, talk to those who have had experience, note the equipment used, note the many types of excellent factory built equipment available, and then decide what would best suit your needs, and how much money you care to invest in your hobby at the outset.

Many do start out with low priced units, and continue with same for years, while others decide to "graduate" into mass production equipment. Attention is called to the fact that it is generally possible to readily dispose of any standard, well known piece of used lapidary equipment. Standard lapidary equipment always has had, and still has a good resale value. Note in the advertisements in the magazines in this field how seldom used lapidary equipment is offered. It is usually possible to dispose of it privately without being obliged to advertise. Hence no matter what type of standard, factory built equipment you may

purchase, it has a definitely good resale value, provided same is maintained in good condition—just like your Ford or Chev.

It may be noted here that while the hobbyist is not primarily interested in mass production or commercial work, the fact is that many of the old timers who engage in gem cutting, easily make the hobby pay its own way, and at the same time build up valuable collections—all in leisure time. Finished gems, and polished specimens always have a ready market.

The home gem cutter is bound to finish many duplicates which are not needed for his private collection. For example, when a thunder egg is sawed there will be two halves, more or less identical or quite similar. The cutter will generally place the best half in his collection, and the other half becomes a duplicate not needed. The same is true in finishing many other specimens, including cabochons. Hence the home gem cutter is bound to accumulate duplicates. These may be disposed of in quantity lots to supply houses, or even to beginners in the field. When sold to supply houses, retail prices are not to be expected, for after all the dealer must realize costs of operation and profit.

The income from duplicates and surplus production enables many hobbyists to make the hobby pay its way, and at the same time, over a period of years the home cutter may build up magnificent collections valued in the thousands of dollars. There are few hobbies that can be made to pay their own way.

Various methods have been given for polishing facet cut gems having a hardness of less than six.

One favorite technique is the use of a discarded phonograph record as the lap wheel surface. Ordinary powdered red jewelers polishing rouge is used with water as the polishing agent. For various soft materials, different speeds are indicated, and this knowledge will soon be acquired with a little practice with a given material. The manner in which the amount of water and rouge should be used, will also be readily learned with a little experience. Not all soft gems can be polished satisfactorily on the phonograph record lap, but it does solve the problem for many. Both sides of the record may be used, and since they are inexpensive they may be discarded as indicated through use.

Opal is perhaps the only precious gem that has never been imitated with even a distant approach to success. Some 60 years ago, French "opal" was placed on the market. This imitation was comprised of two pieces of lenticular clear glass, cemented together, with a thin plate of mother of pearl between them—like a triplet. The material was never popular, and is now seldom seen.

Wrinkles may appear when adapting the sanding cloth over the working face of the vertical running type of sander. In order to get a smooth adaptation of a new sanding cloth, the back side (not abrasive side) should be made slightly moist with water. This will soften the cloth and permit easier adaptation to the face of the wooden disk.

On this type of sander the cloth is generally held firmly in place by the use of a metal hoop, fitted tightly over the slightly tapered periphery of the wheel. Some workers cut a groove on the periphery of the disk, and hold the sanding cloth in position with a heavy rubber band cut from an old inner tube. In both cases the dampened cloth can be more easily adapted.

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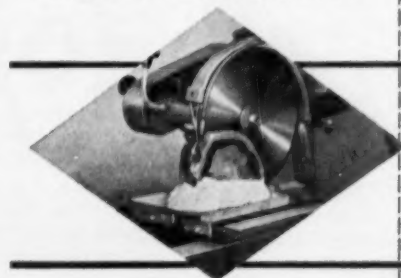
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By RANDALL HENDERSON

ONE OF MY correspondents writes: "My husband and I live on the south mountain slope in Lucerne Valley, California. Just above us the Jackrabbit homesteaders have their claims, and a sorry lot many of them are."

I am sure she is referring to the kind of cabins many of them build, and the junk that litters up the landscape around some of the homes.

The Small Tract Act under which folks of moderate means may obtain from Uncle Sam 5-acre building sites out in the wide open spaces of the public domain, was and is a grand idea. But it is tragic—the ugliness some of the Jackrabbit homesteaders have brought to the desert horizon.

It does not require any more lumber and nails and cement to build an attractive little cabin with pleasing lines than it does to put up a boxcar monstrosity. The only difference is in the vision of the builder.

And after the construction days are over there is no excuse for a junky dooryard.

But there are unpretentious but lovely little cabins on some of the homesteads, with rock-lined paths and a bit of carefully preserved desert vegetation—cabins that look orderly and friendly and inviting. You and I know instinctively that we would like the person who built that kind of a home.

* * *

When Senator Alan Bible of Nevada suggested that western sagebrush might be used for the making of paper, he evidently spoke before he had consulted with experts on the subject. Dr. Robert H. Miller of the biology department at the University of Nevada is quoted in the Nevada State Journal as stating the idea is wholly impracticable for many reasons.

One of the main reasons is that the sagebrush of the arid lands would be a one crop harvest. After the multi-million dollar mill for converting sage to paper had denuded the desert of its brush cover for many miles around, the machinery would have to stand idle for several years while Mother Nature was growing another crop of sagebrush.

* * *

I am glad to note that the Desert Protective Council has recommended a revision of California's legal classification of predatory birds and animals (page 8, *this issue*.) The proposed new listing of predators is suggested by scientists who have no commercial interest in the killing of wildlife.

In one sense of the word, every carnivorous bird and beast is a predator. The robin eats the worm, the hawk

preys on the robin, and the bobcat will devour the hawk if it gets a chance. But Nature, left to her own devices, maintains a fine balance. If worms become scarce, the robin will eat insects, and the hawk will take a rodent if there are no robins available.

Neither the robin, the hawk nor the bobcat pose any threat to the species on which they prey. When the abundance of one food diminishes, they turn to another food or move to new hunting grounds.

As Irston R. Barnes pointed out in a recent article in the *Atlantic Naturalist*, if there were no predators the competition among species could well become disastrous. The deer in the Kaibab forest of northern Arizona were a thriving herd as long as mountain lion and wolf preyed on them. But when the predators were removed by the payment of state bounties for their destruction, the deer increased so rapidly that the food supply was exhausted and wholesale starvation resulted. Robins, if unchecked, could be their own destroyers; the predatory hawk protects them from themselves.

Thus it is that Nature keeps this old world in balance.

Man also is a predator, the most ruthless of the predators for he kills for profit and for sport without regard for the fine balance which Nature would preserve. He is so relentless in his hunting he would destroy until a species became extinct if it were not for the restraining influence of a little minority group of human beings who are called conservationists.

Primitive man killed for food—and lacking either the weapons or the transportation facilities for wholesale slaughter, was never a serious threat to the balance of Nature. Modern man, with almost unlimited tools for destruction, must in some manner be restrained—either by discipline from within, or by authority beyond himself.

And so it is necessary that we have laws designed to more or less control the predatory instincts of man. And I think we will fare better if those laws are written by scientists rather than by those who kill for profit or for sport.

* * *

Olive M. Colhour of Beaver, Washington, gave me permission to copy this verse which she had placed on her lovely display of fire agate at a recent mineral show in Indio, California. I am reprinting it because it expresses so well one of the most important truths in the universe:

*Men look for God and fancy him concealed
In wonder wordings or some bush aflame,
But in earth's common things He stands revealed,
While stars and flowers and trees spell out His name.*

BOOKS of the SOUTHWEST

OUTSTANDING BIOGRAPHY OF MORMON BATTALION LEADER

On rare and happy occasions a historian will choose a subject in whom is reflected an era. Then history takes on added value, for with this whole picture of a by-gone world condensed into the life of one man, the reader can easily draw the tools of analysis and judgment needed for present day events.

Such a subject is Philip St. George Cooke who lived and took part in the most momentous years of the Southwest. His biography, *The West of Philip St. George Cooke, 1809-1895*, written by Otis E. Young of Bradley University, fills a long felt historical need, for Cooke is woven into the fabric of Western annals in many places.

Young plausibly describes the shaping of an army officers who started his 46-year career as a West Point graduate in pre-cavalry days when the Indian still ruled half the continent, and ended his service as a general and recognized authority in the use of horse-mounted combatants, a military skill even at that time well on its way to extinction.

When Cooke's career was at its zenith, the transcontinental railroads were under construction, the tribes were gathering for barbarism's last stand and the frontier was massed with white conquerors demanding the West.

Politics, ambition and favoritism ruled the professional army, and the public laid little prestige to it. People were of the opinion that should a foreign power invade these shores an unbeatable citizen's army could be raised after breakfast, the invaders repulsed by early afternoon and everyone home in time for supper. Cooke was undeniably ambitious, but his deep sense of duty often forced him to take the hardest path. This led him to play decisive roles against such men as Fremont, whose true character Young does not gloss over to avoid offending hero worshippers.

Cooke is mostly remembered for his command of the Mormon Battalion, the California-bound Army of the West's strategic reinforcement. This command was a left-handed compliment for Cooke, the disciplinarian, and only Cooke, Kearny felt, could get this band of undisciplined men across the New Mexico and Arizona deserts. Of this historic trek, the author writes:

"The Mormons never loved Cooke, but in the end he wrung from them a respect which was earned by few gen-

tiles (non-Mormons); they understood that he had driven them through the deserts and the hills, sparing no man, including himself, and years later they asked that his body be buried in the New Zion."

Published by the Arthur H. Clark Company of Glendale, California; with analytical index, extensive bibliography and annotations. Maps, portraits and plates. Handsomely printed in large Caslon type on Ivory laid Corsican deckle-edged paper. 393 pages, cloth, uncut, stained top edge. Limited Edition. \$10.00

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BIOGRAPHY OF NAVAJO MISSIONARY PUBLISHED

Dr. Clarence Salsbury is regarded in many circles as the most outstanding missionary to serve the American Indian in the past 20 years. Those eager to trace the high points of this life of remarkable service will welcome his biography, *Sagebrush Surgeon*, recently released by the publisher.

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tered at the Ganado Mission in the Navajo Reservation of Arizona. As practicing head of the mission's hospital, superintendent of its school, administrator of its various other functions, director of development, spiritual leader and chief counselor to the Navajo, Dr. Salsbury fashioned a mission that is the largest in buildings and personnel operated by the Presbyterian Board of Missions. The humorous, heart warming and tragic events woven into the story of Ganado's growth are faithfully recorded by author Florence Crannell Means. Understandably, the book is heavily slanted toward the religious.

Dr. Salsbury left the Ganado Mission in 1950 (he accepted the "temporary" assignment to Navajoland in 1927) and shortly thereafter became director of Arizona's State Board of Health. His stirring activities in this capacity make up the last chapter of the book.

Published by Friendship Press, New York; 166 pages; cloth, \$2.75; paper, \$1.50.

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